



Printed by R. B. Russell, London, 1894.

Printed in London by R. B. Russell.

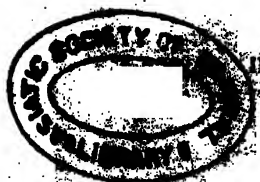
Buying a Mountain?

WANDERINGS
IN
NEW SOUTH WALES,
BATAVIA, PEDIR COAST, SINGAPORE,
AND CHINA;

BEING
THE JOURNAL OF A NATURALIST

IN THOSE COUNTRIES, DURING 1832, 1833, AND 1834.

BY
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IN TWO VOLUMES.

VOLUME II.

3026

2323

LONDON:
RICHARD BENTLEY, ST. MARTIN'S LURINGTON STREET.
Printed by G. & J. S. Smith, 11, St. Martin's Lane.

1834

508.3

B. 471 W

36753

SL. NO. 50849

LONDON:

ROBSON AND PALMER, SAVOY STREET, STRAND.

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***Page 243, line 19, after island, insert with passengers of the
French nation.***

WANDERINGS,

&c.

CHAPTER I.

Pedir coast—Treaty with the Acheenese—Anarchy—Syed Hussain's claims—Trade in the Areka-nut—Visit to the Village of Gingham—Negociation for the restoration of a Penang brig—An amulet—Visit of the Rajahs to the Queen—Gingham—Trade of the coast.

It is stated, that during the life of the former rajah, Pedir was not a tributary district to the territory of Acheen, but commanded the whole line of coast to the eastward, and from that circumstance the Betel-nut coast, which extends to the eastward, and not to the westward of Pedir, received the name of the Pedir coast: the old rajah was also very expeditious in loading ships, and took the goods in barter from the traffickers

at the fixed price, unless they were rated extravagantly high.

I had an opportunity of obtaining a copy of the treaty made with the Acheenese, by Sir Stamford Raffles, and ratified by the Marquis of Hastings, then Governor-General of India: it was executed at a village near Pedir, which was pointed out to me from the roadstead, the rajah of Acheen being at that time obliged to reside there, from political circumstances. I annex a copy of the treaty,* the origin of which is stated in the "Life and Public Services of Sir Stamford Raffles," by his widow. (4to. 1830, pp. 396, 397.) And in a letter from Sir Stamford to Sir Robert Harry Inglis, he says the Acheen country "at one period attracted more attention in Europe than most eastern countries, but which has long declined in importance." "For the last four years, (1819,) the country of Acheen had been a prey to disorder and anarchy. A rich merchant of Penang, Syed Hussain, patronized by the late Mr. Petrie, taking advantage of the unsettled state of the capital, set up claims to the sovereignty; and, having expended an immense sum in bribes and corruption, contrived, by means of his superior naval force, and the advan-

* See Appendix A, at the end of the volume.

tage of equipping his vessels from Penang, to command the trade of the Acheenese ports, and to invest one of his sons with the title of sultan. The Penang government, taking part with this side of the question, strongly recommended the support of it by the supreme government, and a force of a thousand men was actually applied for, with proper equipments, in order to establish the newly-created king thoroughly on his throne. Captain Coombs, a protégé of Mr. Petrie's, and who had been employed as the agent of the Penang government, was in Bengal at the time of my arrival, and Lord Hastings asked my opinion. I had no hesitation in giving it, as far as it was then formed ; and the supreme government was induced to pause. I was subsequently joined in a commission with Captain Coombs, for the purpose of finally adjusting the question.

“ After my arrival at Penang, I was informed that Colonel Bannerman had protested against my interference at Acheen, and had written in such terms to the supreme government, that it was incumbent on me to await the answer. I complied with this request ; and while the question was pending, proceeded to this place, (Singapore,) effected my object, and returned to Penang in time to receive the further instruc-

tions of the supreme government. These only tended to confirm what I had formerly received, and Captain Coombs and myself accordingly proceeded to Acheen. We remained there nearly seven weeks ; during the early portion of which, we were directly opposed in our politics ; but at length, after a paper war, which actually occupies above a thousand pages of the Company's largest sized paper, he came round to my opinion, and was satisfied, that in justice and honour, there was but one course to pursue, namely, supporting the cause of the legitimate sovereign. The spurious claims set up by Syed Hussain were proved to be unfounded, and it was clear he had grossly deceived our government. We therefore concluded a treaty, and effected all the objects we required, namely, the right of having a resident and establishment at Acheen, and to exclude all foreign European nations from having a fixed habitation. All that we had then to do, was to require the governor of Penang to restrict Syed Hussain from further interference, and troops and equipments of course became unnecessary.

I never had a more disagreeable duty, and consequently was highly satisfied to bring our mission to so desirable a conclusion. It was an object of great importance to take the right side

of the question ; and had our government been once committed on the other, and troops introduced, we should soon have been so deeply involved, that a worse than Candian war might have been apprehended. In a country like Acheen, by military operations, we had every thing to lose, and nothing to gain."

* It was discovered, when too late, by the supercargo, that the village of Pedir was the worst place on the coast to procure either a quick dispatch or a cheap cargo of the Areka-nut ; for the rajah is obliged to treat with merchants, to supply the ship with the requisite quantity which has been agreed upon : the other European vessels had anchored at the village of " Gingham," about eight or nine miles further to the eastward. At this place, the contracts are made with merchants, not with the rajah ; and the merchants pay the rajah his dues. It is always best to contract with the merchants, who can supply it at a quicker and cheaper rate than the rajahs, who must themselves apply at last to the merchants ; and the payment proceeding through the hands of the rajah, or his ministers, the latter take care that some remains behind for their special use ; and, at the termination of the affair, the buyer will find that he is the loser, not the seller. Sawang, Tellisomoy, and

other places on the coast, abound also in the Betel-nut.*

Another error which was fallen into by not being acquainted with the custom of the place, was purchasing the nut by the pecul instead of the *laxar*, by which much loss is sustained by the buyer. The *luxur* or *laxar* is in weight one pecul and thirty-five-hundredths of a pecul : it consists of ten thousand nuts, and from ten to twenty-five per cent., according to the bargain previously made, is given over, for nuts which may be rotten or otherwise damaged.

Several vessels, the *Eleanor*, *Helen*, *Dania*, (Denmark ship,) and *Peru*, were lying in Gingham roads, for cargoes of Areka-nut. I took an opportunity of visiting the village of Gingham, proceeding thither in the ship's boat. The coast to the eastward still maintained the same picturesque character as about Pedir, except perhaps in some parts where it was more densely wooded with cocoa-nut and other trees close to the beach. We passed a cluster of palm-leaved thatched, bamboo huts, which was the village of Ilbu. The

* One of the merchants, a Moorman, named *Mahomet Monsour*, engaged, if a ship was brought next season to Sawang, (a village further to the eastward) to deliver on board six thousand peculs of the Areka-nut in the space of eight days.

village of Gingham was not visible from the roadstead, being situated a short distance up a river, and hidden by the dense foliage of various kinds of trees growing about it. A short distance further to the eastward, a cluster of habitations formed the village of Buron; and Sawang (or, as called by the Malays, Putukurra) is several miles still further in the same direction.

I have before mentioned, that a Penang brig had been seized by the Acheenese grab, the Nacodar (or master) of which, having been accused of trading in arms and ammunition, with one of the rajahs upon the coast, at present at war with the ruler of Acheen: many of the commanders of vessels then on the coast were desirous of getting, if possible, the vessel returned. She was the property of several native merchants at Penang, and had been chartered by an English merchant there for the Pedir coast, first calling at the Maldivé islands for a cargo of dried fish.

A brother of the Acheenese rajah, named Pungarang Ibrahim, a fine and handsome Malay, was on board the grab; and to him application was made for the restoration of the vessel. He had a very intelligent Malabar native as an interpreter, who spoke several European languages—English, French, Spanish, &c.—fluently. The

question, whether or not the vessel was a legal prize to the Acheenese government, was discussed by the native party with considerable force and eloquence. The Nacodar was accused of having disposed of arms and ammunition, under British colours, to the rajah mudar of Sambalangang, against the treaty concluded between the British and Acheenese governments, the rajah of Sambalangang being at war with the king of Acheen ; and one of the articles of the treaty states, that any British vessel supplying an enemy of the rajah of Acheen with arms and ammunition, is liable to confiscation ; and upon this article of the treaty, it was contended that the brig was a legal capture. The Pungarang* Ibrahim then produced the original treaty, written in the Malay and English languages, duly signed by the governor-general of India, Sir Stamford Raffles, and Captain Coombs.

The Nacodar stated, in his defence, that he having given, and not sold, the arms and ammunition in question, the brig was not liable to the consequences of a breach of the treaty. The discussion concluded by the rajah declaring, that if the commanders would return in one or two hours, they should receive his final decision,

* Pungarang is the title of prince.

as he would consult the old queen, who has much power, upon the subject. When the commanders returned on board the grab, the queen was present, who was a fine old lady, and received her European visitors in a very cordial manner. The subject relative to the vessel was then renewed : they were anxious to procure the nacodar, (who had sought refuge on board one of the ships,) and take him to Acheen, where, most probably, his life would be sacrificed ; or the rajah offered to send him to Penang, in irons, to be tried by the authorities at that place, if any commanders of the vessels going to that port would take charge of him.

In the renewed discussion of the subject, the justice of the case appeared decidedly in favour of the rajah's party, as it was now ascertained that a shot had been fired from the brig, which had killed a man on board the grab.

The rajah summed up his final decision to the following effect, through the medium of an interpreter :—" Let the native Nacodar be sent on board my vessel ; I will not injure him ; I will make a solemn engagement with you to that effect ; but I intend sending him to the settlement of Penang in chains, there to be dealt with as the judges at that settlement may determine : if the man has not done wrong, why is

he afraid to come on board? here are plenty of Europeans.* And thus concluded an address replete with excellent sense and sound discrimination—"I appeal to your English laws whether I have not decided justly, and according to the treaty solemnly ratified between the Sri Sultan Alla, Iddeen Jowhara, Allum, Shah, Sultan of Acheen, and the British government?"

One of the commanders, who afterwards asked the rajah to give up the vessel as a matter of courtesy, received the following sensible reply—"Would one of your men-of-war surrender a prize which had been proved a legal capture?" He then added, that the vessel should be taken to Acheen, and when there, if found by his brother, the rajah of Acheen, to be illegally seized, she should be returned forthwith to Penang, and the owners indemnified for her detention, and any damage she might have sustained while in their possession.*

The rajah is a fine and handsome young man,

* I understand that no arms or warlike stores are permitted to be exported for Penang, or any other of our settlements for this coast; if the Acheenese king requires any, he sends a requisition to the government of Penang, who supplies him at fifteen per cent. above the cost price, to cover the expenses of freight, &c.

of very pleasing manners, and an intelligent countenance ; his face was full, broad, and had the true Malay characteristics ; he had upon his left arm a large seal, or amulet, of about two inches in diameter, upon the stone of which (called " Pungli " by the Malays) a sentence of the Koran was engraved ; he said it was intended as a charm against his being injured ; " so the Acheenese believe," he added, but did not appear to place much faith himself in its supposed powers.

The different rajahs came on an appointed day from the different districts in the vicinity, to Pedir, to pay their respects to the old queen previous to her departing to Acheen in one of the men-of-war, which she did on the evening of the 20th of July, accompanied by the whole of the Acheenese fleet.

Accompanied by Captain M'Alister, I visited the village of " Gingham." At the entrance of the river, a bar, (similar to, I believe, the whole of the rivers upon this coast,) on which usually rolls a heavy surf, rendering its entrance somewhat dangerous for boats ; the river maintained a very winding course even to the village : a number of shrubs abounded in the water, and about the banks, among which were the *Acanthus ilicifolia*, and several others. The village of Gingham

is situated about a mile distant from the entrance of the river ; the thatched-houses, of which it is composed, were partially concealed by the graceful and elegant Bamboo, Eju, Cocoa, and Areka palms. Having landed and ranged about the village, I made inquiry of the native merchants, who were the Moormen of Hindostan, many of whom had been born in India, and others on the coast, respecting the trade of the place, which consists exclusively of the Betel-nut ; they informed me that they contracted with the supercargoes of vessels* visiting the coast, paying to the rajah a certain tribute. The export is from forty to sixty thousand peculs annually, during the months of May, June, July, and some part of August. The total amount collected upon the coast, the greatest portion of which grows some distance inland, is computed at or about eighty or ninety thousand peculs.

The number of vessels, of all classes, freighted every year upon this coast during the season, varies, and depends a great deal upon their size ; sometimes forty of all classes had been loaded, but when a large Bombay Indiaman comes and takes ten thousand peculs at one time, of course

* Most of the country vessels that visit the coast have native supercargoes, as they effect much better bargains with the native merchants upon the coast than Europeans.

it occasions a scarcity for the smaller ones; in this case, therefore, although the number of vessels loaded is not so great, the quantity exported is pretty nearly the same.*

The cargo sent on board the ship in which I visited Pedir, came not from the Pedir district alone, but was brought (by contracts entered into by the rajah of Pedir, with the native merchants of those places) from Gingham, Sawang, &c., and of course at an increased price. I made inquiry, if a ship was brought next month, (August,) whether they could load her with Areka-nut, and what period of time they would take to deliver six thousand peculs on board. The reply was, that at this season a greater scarcity of nut prevailed than usual, on account of internal wars drawing away the men, and causing a scarcity of hands to collect and shell it; my informant, therefore, would not engage to deliver any next month, but the following May would engage to supply the quantity of six thousand peculs in a week, receiving dollars,

* I have before stated, that the heat generated by a cargo of the Areka-nut is excessive. I recollect the carpenter of a ship, when desirous of bending some wood, placing it under the main hatch, among the nuts; in a few minutes it was sufficiently steamed for its intended purpose; after a fortnight or three weeks the heat is materially moderated.

cambrics, long cloths, opium, iron, &c., in exchange, and delivering the Areka-nut at one dollar the pecul; however, much depends on the agreement of price between the contracting parties at the time, and the greater or less demand for the European and other goods brought into the market. •

There was an abundant supply of fish in the fish-market at Gingham, consisting of very large specimens of *Acanthurus*, or lancet-fish, *Chætodons*, *Cyprinus*, several species of the Perch tribe, the Barracouta, Shark, as well as a number of others, varying in form, size, and colour; and it appeared from the collection exhibited, that abundance was taken upon the coast.

On the evening of the 23d of July, we sailed from "Pedir," bound for Singapore and China, having six thousand and eight peculs of Areka-nut on board. The cargo was purchased for five thousand four hundred and forty Spanish dollars, forty peculs of iron, thirty kits of Swedish steel, thirty peculs of lead, and three chests of opium. Upon the iron a profit was gained upon the invoice prices of $77\frac{1}{2}$ per cent. upon the lead, $81\frac{1}{2}$ per cent.; and upon the steel, 48 per cent. Upon the opium there was, as I have before mentioned, but very little profit; indeed, the price of a dollar and a-half per pecul

was too high for this article ; but, unfortunately, the speculation originated at Batavia, and being the first ship chartered for the purpose from thence, the parties were consequently ignorant of the people and country, and of the kind of merchandize most advantageous for barter. From the number of ships requiring nut at the same time, payment in dollars, and at an advanced price, is sometimes the only means of procuring a cargo, unless the vessel remained so long as to be ruinous to the speculators.*

* A number of vessels from Penang come for the nut at this season, to take it to that settlement in time for the Indiamen, who purchase it for the China market.

CHAPTER II.

Arrive at Singapore, and sail for China—The Lemma Islands—Their inhabitants—Boats—Hong Kong Island—Dr. Abel's visit to the shore—A pilot's surprise—Cap, sing, Moon—Cum, sing, Moon—Outlaw ships—Trade in opium—Researches about the hills—Botanical productions—Macao—Its streets—Vain endeavours to open a trade with the Chinese ports—The Rev. C. Gutzlaff—Harbour of Macao—Jealousy of the Chinese government—Fruit—Wang, hee canes—The Casa garden—Cave of Camoens—Tributary verses to that poet.

AFTER a long passage down the Straits of Malacca, we arrived at Singapore on the 19th of August, and sailed again on the 22d for China.

At daylight, on the 6th of September, we were off the "Lemma Islands," having previously arrived in soundings on the 4th, and were frequently visited by Comprador boats seeking for employment. We took a pilot from one of them to direct us to "Cap, sing, Moon." The Lemma

Islands, like most of those about this part of the China coast, are bold, rugged, and but very scantily covered by vegetation; its geological structure is principally coarse granite, approaching to sienite, and quartz, which enters largely into their composition.* The inhabitants of these islands appear to be principally fishermen, and their boats animated the waters around to some distance, in great numbers: some were of very large size, being probably of sixty or seventy tons burden, and are inhabited by whole families; the clatter of women, squalling of children, and barking of dogs, could be heard in concert, when in beating to windward we came near any of them.

These slenderly constructed but admirable boats, with their large mat sails, some having one, two, or three masts, sail with rapidity: they would often lower a small awkward punt, and bring some fish on board for sale. The women worked hard, and one would be often seen with an infant at her back, with others running after, seeking her protection, whilst she assisted in the various occupations of the ship, in tacking and hauling the ropes. They all had a dark, wretched appearance, from the exposure to weather and hardships of many descriptions. When

* Abel's China, 4to. p. 59.

the weather is stormy, the vessels bring up under lee of one of the numerous islands, grouped about the coast. I have often seen them assembled, from twenty to fifty, for the night, under the lee of one of them, on the shore close to which, some small miserable thatched huts, containing numbers of wretched inmates, and small patches of cultivated land were visible.

On the 10th we were off Hong Kong Island. It is lofty, bold, and occasionally its barren appearance is diversified by the verdure of the ferns and other plants, which give some beauty to the huge piles of rocks, towering towards the heavens, in gently sloping as well as abrupt declivities. At one part a small cascade fell from the rocks above into the ocean abyss beneath, and other places bore the appearance of mountain torrents being formed during heavy rains.

Dr. Abel, who landed upon it, says, "I took advantage of the first watering boat to visit the shore, and made one of these mountains and the waterfall the principal objects of my visit. This mountain, the highest on the island, is, according to Captain Ross, who has measured it, about fifteen hundred feet above the level of the sea, and is composed of trap approaching to basalt in the compactness of its structure. In ascending it, I followed the course of a delightful stream,

which rises near its summit, and found by its side a number of interesting plants. The general surface of the mountain, and indeed of every part of the island of Hong Kong, that I was able to visit, is remarkably barren, although in the distance it appears fertile, from a fern which I believe to be the *Polypodium trichotomum* of Kœmpfer, which supplies the place of other plants. I ascended about one thousand feet, and returned by a path which passed over a small hill, or rather mound, differing in structure from all the rocks in its neighbourhood, being composed of a very friable stone of a reddish white colour, much resembling disintegrated felspar. On reaching the shore, I examined the rocks by the waterfall, where they are exposed in large surfaces, and found them composed of basaltic trap, exhibiting in some places a distinct stratification, in others a confused columnar arrangement. It is also divided into distinct, well-defined, rhomboidal masses, separated from each other by very obvious seams, in which I frequently found cubic crystals of iron pyrites."*

The further progress of the ship was extremely tardy, from calms and adverse winds, so that we did not reach the Cap, sing, moon

* Abel's China, 4to. pp. 80, 61.

harbour, until the morning of the 12th, and then, from calms, could not enter it, but anchored outside. The Chinese pilot on board was but of little service, and he was quite surprised at the commander's knowledge of the islands, depth of water, &c., until he found out that he derived it from the charts and Horsburgh's Directory. It was quite amusing, when any difference of opinion existed between them, to hear the pilot, in a pet, declare, "You look at bookee, but you not alway savez a rightee; bookee wrong, you wrongee sometime."

A greater or lesser number of different species of *Libellula* have been flying about the ship, ever since we have been in soundings; and it is said, that when a great number of these insects are seen flying about the ship, a northerly wind may be expected; but I seldom found the assertion borne out by the fact, except its happening four or five days after can be considered a corroboration.

On the following day we entered the "Cap, sing, moon," for a short time: it is regarded as a safe and is certainly a picturesque harbour, but lately it has been left by many of the opium ships for another, by some considered a safer harbour, and called the "Cum, sing, moon," formed by different islands, and the main land

to the northward of Macao, and distant about eighteen miles from that settlement. The "Cap, sing, moon," has some towering verdant mountains, with fertile valleys, and little thatched cottages of fishermen and others, peering through a thicket of foliage. This is contrasted at another part by barren hills, destitute of any beauty, excepting what may be scantily imparted by a few stunted shrubs or ferns.

Well may this be called a celestial empire, wherein moons and stars condescend to take up their local habitation. It is ludicrous to hear the inhabitants talking of having intercourse with the celestial people in the different moons, "Where did you come from last?" "I came from the other moon," was a very common question and answer.

On the 14th of September we sailed over to the "Cum, sing, moon,"* and anchored at six o'clock, P. M. ; this possessed far more extensive and picturesque beauties than the harbour we

* The definition of this harbour in the Chinese language is as follows :—

Kum,	Sing,	Moon,
Gold,	Star,	Gate.

"Gold Star" among the Chinese is the planet Mars, so that this place is named *Margate*.

had left.* The entrance is, however, difficult, and even dangerous for strangers; yet, after having been once, the same person could easily take a ship in or out at any time without risk, taking advantage of the tides. From the land around this place not being so elevated as in the rival harbour, the gusts that descend from the gullies in stormy weather are not so violent, and a ship is consequently not so liable to drive as has been experienced during some severe typhoons, which occurred a short time previous to our arrival.

Many of those *outlaw ships* that trade in opium, (one of the most important, although prohibited, branches of commerce in the Chinese empire,) remain either in this harbour, or that of the “Cap, sing, moon,” during the season of the year that typhoons are expected, and anchor off the island of Lintin during the fine-weather months. One part of this trade in opium is carried on by the Chinese smuggling boats, which take it from the European receiving ships stationed here, or more properly speaking at “Lintin,” (this being merely a temporary place of refuge from typhoons).

* White porpoises, slightly tinged with pink, are frequently seen tumbling about in the “moons” and sea in the vicinity.

By occasionally visiting the *Hercules*, one of the receiving ships for opium, I was able to observe, through the kindness of Mr. Parry, her chief officer, how this extensive and lucrative trade is conducted. The sales are effected in Canton by the European merchants, and orders sent down with the smuggling boats for the delivery of the opium from the different ships; the boats engaged in this occupation are armed with spears, shields, and even fire-arms, to repel any attack that may be made upon them by the mandarin guard-boats. They are also manned by a very brave and athletic crew; indeed Chinese fight very well one against the other, but cannot bring forward sufficient courage to face Europeans, except the advantages are overpowering on their side. These boats are provided with sails, in addition to a number of oars and rowers, and they pass through the water with inconceivable rapidity. The mandarin boats, having a weaker and less choice crew, can seldom or ever overtake them; this, however, may in part be explained from the fact of the guard-boats, (the revenue cutters,) sent by the Chinese government to cruize against smugglers, coming alongside for a supply of the prohibited drug, to smuggle it themselves into the heart of the Chinese empire. Any thing can be

done by bribery in this country, and these boats are often employed for smuggling cassia, treasure, &c. on board European ships at Lintin, &c. ; indeed every smuggling boat that takes opium from an opium ship, leaves a payment of one dollar on each chest for the mandarins, and on the opium returns being made up, the sum is regularly paid to them ; each boat leaves also a kum, shaw, or present for the ship, of five dollars.

The chests of the drug are opened on board ; the balls or cakes are taken out, and immediately deposited in small mat bags, brought by them for the purpose, and sown up ; being in that way more convenient to smuggle than in large heavy chests. There are three kinds of opium usually sold in the English ships—the Malwa, Benares, and Patna ; a fourth, the Turkey opium, is confined to American and other foreign vessels. The Patna opium is in balls, packed in partitioned cases, each chest containing forty balls. Old opium fetches a higher price than new ; the former being solid, the latter soft and more liable to run. The old chests, so termed, are usually two years old when they come under that denomination. The Malwa opium is in rather flattened cakes. The prices of this drug of course fluctuate very much : the consumption in the Chinese Empire must be enormous, and

is entirely—not the least extraordinary part of the affair—carried on by an illicit trade.*

The payments are usually made, if to any extent, in Sycee silver, which is taken by weight, no silver coinage being acknowledged by the Chinese government. The Chinese purchasers of the opium refine it by boiling, previous to using it for smoking: the mandarins, besides smoking, use it also in the form of tincture, usually carrying a small bottle containing it about them. The present Emperor of China has been described as being totally incapacitated from any business, through the excess to which he has carried the debilitating practice of opium smoking.

I took several opportunities of making *herborisations* about the hills in this harbour; and

* At one time, during a rebellion in China, the emperor's troops lost courage, (which to us must appear a wonderful event among Chinese,) and would not proceed against the rebels: this called forth from the emperor the following public rebuke:—"The emperor rebukes very sharply all the governors of the Chih-sang provinces, from which authority emanates, on account of their negligence in attending to the state of the military under their jurisdiction. He makes particular mention of the prevalent use of opium among the Canton military, and of the misconduct of the Ho, nan troops on their road to Fuh, keen."—*Canton Register*, No. 13, 14, 16th Sept. 1838.

in so doing, fortunately, did not meet with any molestation from the inhabitants. On landing, usually upon a sandy beach, or rocks of granite, shell-fish, and other marine animals, were very scarce. The hills were covered, about the declivities, with a large quantity of shrubs and plants, and a variety of grasses: the summits were usually barren, and covered with sand. Two or three species of *Melastoma* were very abundant; and one species, the *quinquenervia*, was in full flower, being beautifully covered with a profusion of large rose-coloured blossoms, forming a contrast, by their brilliancy, to the dull, uninteresting character of the vegetation around.

Several of the fern tribe were also abundant, either by the borders of the rivulets, or strewed over the declivities and summits of the hills. Among them was the *Gleichenia hermanni*, *Bluchnum*, *Polypodium*, &c.; as well as a *Ficus*, bearing small red fruit, and other shrubs. In the valleys, or any little irrigated spots, the cultivation of rice was particularly attended to. The fruit of the *Melastoma* (for several of the shrubs were in fructification) yielded a dark bluish juice, on which several coleopterous insects fed. Two water snakes were caught upon the beach; one of a bright yellow over the head and neck, and of slender form. Among other botanical

specimens collected was a *Rhus*, *Flemingia*, *Rosa*, *Malva*, *Cereopsis*, &c.

On the 1st of October I visited Macao. This ancient colony of the Portuguese, in China, has a very picturesque and romantic aspect on approaching it from the sea : it is situated upon a peninsula, and, from bearing some resemblance to a mallet, has received the name Macao, which in the Portuguese language signifies that instrument. The white houses, rising one above the other ; the high mountains in the back-ground, and about it ; the castle, and monasteries, perched on the elevated summits of some of the hills ; the numerous sacred edifices, elevating themselves above the neighbouring houses, the most conspicuous objects in all Roman Catholic countries,—all contribute to the beauty of this little city : it seemed, both from the roadstead and on landing, a Portuguese town, to which the taste and wealth of our native land had been added, not the least cause of its neatness or beauty : it contains also very agreeable society, both for residents and strangers.

The streets of Macao are very narrow : this, however, affords shelter to the pedestrian from the fervent rays of the sun ; they are likewise ill-paved and very steep, the houses rising from the *Praya Grande* on one side, and the inner

harbour on the other, terrace upon terrace, and are constructed upon a very solid foundation of rock : the pavement consists of smooth and rough stones, without any attention having been given to their relative sizes ; so that a person taking a short walk, may often expect to return with a strained ankle.

The private residences of the Europeans are very convenient, spacious, and more delightful for their interior accommodation, than for any exterior beauty.

Many vessels have been sent to the east coast of China, by enterprising merchants of Canton, to endeavour, if possible, to open a trade with some of the Chinese ports on that coast. A highly-talented gentleman, the Rev. C. Gutzlaff, with whom I had the gratification of forming an acquaintance, has often accompanied the vessels ; but the result has been a very limited degree of success ; the imbecility of the Chinese government has been fully ascertained ; and during the last voyage, edicts were stuck about the village off which the vessel had anchored, stating that the foreign vessel had been driven away, while she still remained at anchor within sight of these very papers, endeavouring to carry on some traffic with the inhabitants ; but, from the fear of the mandarins, it was effected but to a

very limited extent. It is stated that the embassy of Lord Amherst is still mentioned by the Chinese, who say that it was fully expected, from the force he had with him, he would not have suffered himself to be driven away, but would have obliged the Chinese government to accede to any terms he chose to propose.

The gentleman I have before mentioned, the Rev. C. Gutzlaff, is well acquainted with several dialects of the Chinese language, which he speaks with such fluency, as to be, when disguised, taken for a Chinese: he studies mankind, and endeavours to spread the Christian religion in a truly missionary spirit, so as to conduce (which a pure religion necessarily must do) to the happiness of the people: he also endeavours to effect his benevolent purpose towards them, by distributing tracts relating to the sciences of astronomy, geography, &c. written in the Chinese language; endeavouring, by an admirable religious feeling of benevolence, to promote the welfare of the people by spreading a purer religion than they possess; at the same time cultivating their minds in other branches of knowledge, enabling them to receive more vividly the impressions of the divine Spirit. Would that all our missionaries followed the same plan! how inestimable, then, should I consider their cause!

The inner harbour of Macao is spacious, and capable of affording anchorage to a large number of ships, safely sheltered from every gale; but only twenty-five European vessels are permitted to anchor, and those only which belong to the Spanish or Portuguese nations; excepting in case of distress, when a ship of any other European power may require immediate repairs; but even then there is much trouble and difficulty in procuring the requisite permission: this proceeds from the usual jealousy of the Chinese government towards Europeans. Nearly two centuries ago, or perhaps more, permission was granted by the Chinese authorities for twenty-five foreign vessels of the Portuguese and Spanish nations to enter the harbour; and these are always regarded by this extraordinarily blinded people to be the very identical vessels which had at that time received the original indulgence from the imperial government.*

Fruit is neither particularly abundant nor excellent in this part of China; the great variety of oranges may be regarded the best, as also the elegant scarlet Lit, chi (*Dimocarpus litchi*). There is another fruit, of which also there are several varieties—it is a *Diospyrus*,—(the *Dios-*

* No individuals, except Portuguese, or naturalized Portuguese, are permitted to be owners of houses at Macao.

pyrus Kaki?) or Chinese date plum. One of the varieties known by the Chinese under the name of Ngnow, sum, tze, or bull's heart *Diospyrus*—(Ngnow signifying bull; sum, heart; tze, this particular fruit, the *Diospyrus*)—resembles, in external appearance, a Tomato, except in being of a larger size, and of a bright red colour: when divided, it is found to contain a yellowish semi-transparent pulp, not unlike a plum either in flavour or appearance, and contains several oblong brownish seeds. The outer skin has an astringent property, which discolours the steel of a knife when employed to divide the fruit, which is not at all requisite for the purpose. The other kind is much smaller, oval, about the size of a date; being similar to the former in colour; it is called by the Chinese Kai, sum, tze, or fowl's heart *Diospyrus*: in taste it closely resembles the mawkish sweetness of a ripe date. I had only an opportunity of seeing two of the varieties of this fruit, but there are several other kinds.† The flat peach, or “Peen

* The name *Kaki* is said to be Japanese; this fruit is not so named by the Chinese.

† I had models of the two kinds just mentioned, executed with great accuracy by a Chinese. The imitations of the fruit were modelled from clay, and accurately coloured afterwards according to nature.

to" (peen signifying flat, and to, peach) of the Chinese, is a variety of the peach, appearing, although in reality of a perfectly natural form, to have had its flatness produced by artificial means. The blossoms of the tree are double, but fertile. The fruit is described as being of an excellent flavour.

The canes, so much valued, and sold usually at a high price, and known by the name of the *Wang, hee*, (Wang signifying yellow, and hee, root,) are said to be the root of the narrow-leaved bamboo, which grows abundantly about Macao, forming very pretty hedges or inclosures : these are valuable and rare, on account of the sufficiently straight descending roots being difficult to procure ; many trees must consequently be destroyed before those particular roots of the requisite length and straightness can be obtained. The roots of this bamboo are very troublesome when planted, more especially in a garden, from spreading so far, and so much towards the surface of the ground, as to tear up the paths, &c.

I visited, in company with Mr. Fearon, the Casa garden, in which is situated the principal object of my visit—"Camoens' Cave;" celebrated as the spot where that distinguished poet wrote the poem of the *Lusiad*. It is not

correct to call it a *cave*—it is merely masses of granite rocks piled one over the other in that extraordinary and romantic manner in which that kind of rock is so often seen grouped; and this forms a kind of archway, which has been denominated a cave. Delightfully surrounded by umbrageous trees, and shrubs overhanging the rocks, the seclusion of the spot might well have been chosen by one inclined to meditate and compose; where all the objects around him would not fail to excite the poetical imagination to a much higher degree than could possibly be effected in the hurry and bustle of society. A summer-house has been erected upon these granite masses.

Some beautiful Latin verses (which I hope to see engraved and placed on the spot) have been written by J. Davies, Esq., who having kindly favoured me with a copy, I with pleasure insert them.

IN CAVERNAM, UBI CAMOENS FERTUR CARMEN EGREGIUM
COMPOSUISSE.

Hic, in remotis sol ubi rupibus
Frondes per altas mollius incidit,
Fervebat in pulchram camænam
Ingenium Camœntis ardens :

Signum et Poëtæ marmore lucido
Spirabat olim, carminibus sacrum,
Parvumque, quod vivens amavit,
Effigie decorabat antrum :

Sed jam vetustas, aut manus impia
 Prostravit, Eheu!—Triste Silentium
 Regnare nunc solum videtur
 Per scopulos, virides et umbras!

At fama nobis restat, at inclytum
 Restat Poëtæ nomen, at ingeni
 Stat carmen exemplum perenne
 Ærea nec monumenta quarit!

Sic usque virtus vincit, ad ultimos
 Perducta fines temporis, exitus
 Sprenens sepulchrorumque inane,
 Marmoris ac celerem ruinam!

The Casa gardens, in which the *cave* is situated, are extensive, and have even now, in their neglected state, sufficient beauty to be regarded as the most retired, romantic, and beautiful spot in Macao.

CHAPTER III.

Museum at Macao—Mr. Beale's splendid aviary and gardens
—The Paradise bird—Natural history of this splendid
creature—Anecdotes—Superb magpie—Loris—Descrip-
tion of the aviary.

A museum has been established at Macao, by the English residents, and even now contains an extensive and excellent collection of birds, beasts, weapons, fossils, &c. from all parts of the world. Several rooms are appropriated solely for this collection, having a person to take charge of them, and attend upon visitors. So little encouragement, however, is given to natural science, and the European merchants are so much absorbed in mercantile affairs, that, on the dissolution of the establishment of the Honourable East India Company, this excellent nucleus for an extensive, valuable, and, (with scientific arrangement,) useful

collection, will no doubt be broken up and dispersed.

The great object of attraction at Macao, (together with the agreeable society of the English and American ladies, and the beautiful specimens of the fine arts to be seen in the painting room of the celebrated Chinnery,) is the splendid aviary and gardens of T. Beale, Esq. How pleasant it is to see this gentleman (now resident for upwards of forty years in China) devote his leisure moments to the care and delight of the elegant and brilliant productions of nature, both in the animal as well as in the vegetable kingdom. On entering the large doors, which open from a narrow lane, the ear is saluted by various noises proceeding from a number of caged birds, inhabiting the verandah of the dwelling. The peculiar notes of the Minas, the different screams of Loris, parrots, and parroquets, the twitting of the smaller birds, are variously heard vying with each other in loudness; the occasional caw of the ætherial Paradise Bird, or its resounding note of *whock, whock, whock*, is also heard. The attention of the visitor is diverted from the elegant plumage of the birds to the beautiful flowers of splendid tints in the garden before the verandah, or placed in pots upon the balcony. This

garden proves attractive to the gay, but fickle butterflies that flit about the flowers, as well as to numerous wild birds. * Individuals visiting Macao are eager to view these splendid natural objects ; and the liberal owner readily affords this gratification to the stranger no less than to his friends.

The first, both for variety as well as the inconceivable delicacy of its plumage and tints, of which I intend to attempt a description, is that " aërial creature" of fairy form, decked in nature's most delicate and beautiful colours, the *Paradise Bird*. This is the common or Great Bird of Paradise, the *Paradisca apoda** of Linneus, the *P. major* of Shaw. The length of the bird is usually two feet, measuring from the bill to the tip of the side feathers. The specimen in the possession of Mr. Beale, is a fine male, and was, at the time I beheld him, arrayed in his full and splendid plumage : he is enclosed in a large and roomy cage, so as not, by confinement, to injure in the slightest degree his delicate and elegant feathers.

This beautiful creature has been in Mr. Beale's possession nine years, and was originally

* It is curious that Linneus, by bestowing upon this bird the specific name of *Apoda*, or without feet, should have credited the assertion that it was so.

procured from the island of Bouro, (one of the Molucca group,) which is situated in about the latitude of $3^{\circ} 30'$ south, and longitude $126^{\circ} 30'$ east. It was presented to Mr. Beale by Mr. Bletterman.

In Valentin's account of the Birds of Paradise, (quoted in Forrest's Voyage to New Guinea, &c.) it is mentioned that the Portuguese first found these birds on the island of Gilolo, the Papua Islands, and New Guinea; and they were known by the name of *Passaros da sol*, i. e. birds of the sun. The inhabitants of Ternate call them *Manuco dewata*, the bird of God. The accounts of the bird having no legs, being constantly on the wing, and in the air, on which it lived, are of course perfectly fabulous: to support which account, however, the legs of the birds were always cut off, when the preserved specimens were offered for sale. Another reason for cutting off the legs is, that the birds are found to be more easily preserved without them; besides, that the Moors wanted the birds without legs, in order to put them, in their mock fights, on their helmets, as ornaments. The inhabitants of Aroo, however, have offered the birds for sale with legs these seventy or eighty years; and Pigafetta, shipmate of Ferdinand Magelhaens, who had often seen them, proved, about the year 1525, that they

were not without legs. There are several species of these very elegant birds.

The Ternate people call them Burong Papua, or Papua birds ; sometimes Manuco dewata, and likewise Soffu or Sioffu. The Amboyna natives call them Manu, key, aroo, the bird of the islands, Key and Aroo ; because the natives of the two last places bring them for sale to Banda and Amboyna. At Aroo, the people call them Fanaan. Properly, these birds are not found in Key, which is fifty Dutch miles east of Banda ; but they are found at the Aroo islands (lying fifteen Dutch miles further east than Key) during the westerly or dry monsoon, and they return to New Guinea as soon as the easterly or wet monsoon sets in. They come always in a flock of thirty or forty, and are led by a bird which the inhabitants of Aroo call the King, distinct from the Little King Bird of Paradise. This leader is black, with red spots, and constantly flies higher than the rest of the flock, which never forsake him, but settle as soon as he settles ; a circumstance which occasions their ruin, when their king alights on the ground ; whence they are not able to rise, on account of the singular structure and disposition of their plumage. They are likewise unable to fly with the wind, which would destroy their loose plumage, but take their

flight constantly against it, cautious not to venture out in hard-blowing weather, inasmuch as a strong gale frequently obliges them to fall to the ground. It is also stated, that in Aroo, these birds settle on the highest trees, especially on a species of small-leaved *Waringa* trees, that bear red berries, on which they chiefly live. (*Ficus Benjamina*? Hort. Malab. 3. f. 55. Rumph. Amboyn. 3. f. 90.) The natives catch them with birdlime* and in nooses, or shoot them with blunt arrows; but though some are still alive, when they fall into their hands, the catchers kill them immediately; and often cut their legs off, draw the entrails, dry and fumigate them with sulphur, or smoke only.†.

For the delicacy and harmony in the arrangement of the colours in this bird, as well as its remarkably light and delicate appearance, it may well be named the Bird of the Sun, or of Paradise, for it surpasses in beauty the whole of the feathered creation, appearing more like a celestial inhabitant than one of earth. Although the bird has been nine years in Mr. Beale's aviary, yet it does not exhibit the appearance of age, but is lively and healthy.

* Made from the milky juice yielded by the trunk of the *Sukun*, or bread-fruit tree.

† Forrest's *Voyage to New Guinea*, &c., pp. 134—137.

The neck of this bird is of a beautiful and delicate canary yellow colour, blending gradually into the fine chocolate colour of the other parts of the body; the wings are very short, and of a chocolate colour. Underneath them, long, delicate, and gold-coloured feathers proceed from the sides in two beautiful and graceful tufts, extending far beyond the tail, which is also short, of a chocolate colour, with two very long shafts of the same hue proceeding from the urupigium. At the base of the mandibles the delicate plumage has during one time (according as the rays of light are thrown upon it) the appearance of fine black velvet, and at another a very dark green, which contrasts admirably with the bright emerald of the throat. There is nothing abrupt or gaudy in the plumage of this bird; the colours harmonize in the most elegant manner, and the chasteness does not fail of exciting our admiration. The mandibles are of a light blue; irides bright yellow; and the feet of a lilac tint.

This elegant creature has a light, playful, and graceful manner, with an arch and impudent look; dances about when a visitor approaches the cage, and seems delighted at being made an object of admiration: its notes are very peculiar, resembling the cawing of the raven, but its tones

are by far more varied.* During four months of the year, from May to August, it moults. It washes itself regularly twice daily, and after having performed its ablutions, throws its delicate feathers up nearly over the head, the quills of which feathers have a peculiar structure, so as to enable the bird to effect this object. Its food, during confinement, is boiled rice, mixed up with soft egg, together with plantains, and living insects of the grasshopper tribe ; these insects when thrown to him, the bird contrives to catch in its beak with great celerity ; it will eat insects in a living state, but will not touch them when dead.

I observed the bird, previously to eating a grasshopper, given him in an entire or unmutated state, place the insect upon the perch, keep it firmly fixed with the claws, and, divesting it of the legs, wings, &c., devour it, with the head always placed first. The servant who attends upon him to clean the cage, give him food, &c., strips off the legs, wings, &c., of the insects when alive, giving them to the bird as fast as he can devour them. It rarely alights upon the ground, and

* It has been stated, that during flight they cry like starlings.

so proud is the creature of its elegant dress, that it never permits a soil to remain upon it, and it may frequently be seen spreading out its wings and feathers, and regarding its splendid self in every direction, to observe whether the whole of its plumage is in an unsullied condition. It does not suffer from the cold weather during the winter season at Macao, though exposing the elegant bird to the bleak northerly wind is always very particularly avoided. Mr. Beale is very desirous of procuring a living female specimen of this bird, to endeavour, if possible, to breed them in his aviary.*

The sounds uttered by this bird are very peculiar; that which appears to be a note of congratulation resembles somewhat the cawing of a raven, but changes to a varied scale in musical gradations, as *he, hi, ho, haw*, repeated rapidly and frequently, as lively and playfully he hops round and along his perch, descending to the second perch to be admired, and congratulate the stranger who has made a visit to inspect him; he frequently raises his

* Pigafetta says, in his relation of Magellan's voyage round the world, that in the island of Bachian, (one of the Molucca islands,) a species of bird, of exquisite beauty, was found, which the natives called "the bird of God," saying it came from Paradise.

voice, sending forth notes of such power as to be heard at a long distance, and as it would scarcely be supposed so delicate a bird could utter; these notes are *whock, whock, whock, whock*, uttered in a barking tone, the last being given in a low note as a conclusion.

A drawing of the bird, of the natural size, was made by a Chinese artist. This was taken one morning to the original, who paid a compliment to the artist, by considering it one of his own species. The bird advanced stedfastly towards the picture, uttering at the same time its cawing congratulatory notes; it did not appear excited by rage, but pecked gently at the representation, jumping about the perch, knocking its mandibles together with a clattering noise, and cleaning them against the perch, as if welcoming the arrival of a companion.

After the trial with the picture, a looking-glass was brought, to see what effect it would produce upon the bird, and the result was nearly the same; he regarded the reflection of himself most stedfastly in the mirror, never quitting it during the time it remained before him. When the glass was removed to the lower, from the upper perch, he instantly followed, but would not descend upon the floor of the cage when it was placed so low.

It seemed impatient, hopping about without withdrawing its gaze from the mirror, uttering the usual cawing notes, but with evident surprise that the reflected figure (or, as he seemed to regard it, his opponent) imitated so closely all his actions, and was as watchful as himself. There was, however, on his part, no indication of combativeness by any elevation of the feathers, nor was any irritation displayed at not being able to approach nearer to the supposed new comer from his own native land. His attention was directed to the mirror during the time it remained before him, but when removed he went quietly and composed himself upon the upper perch, as if nothing had excited him.

One of the best opportunities of seeing this splendid bird in all its beauty of action, as well as display of plumage, is early in the morning, when he makes his toilet; the beautiful sub-alar plumage is then thrown out and cleaned from any spot that may sully its purity, by being passed gently through the bill; the short, chocolate-coloured wings are extended to the utmost, and he keeps them in a steady flapping motion, as if in imitation of their use in flight, at the same time raising up the delicate long feathers over the back, which are spread in a chaste and elegant manner, floating like films in the am-

bient air. In this position the bird would remain for a short time, seemingly proud of its heavenly beauty, and in raptures of delight with its most enchanting self; it will then assume various attitudes, so as to regard its plumage in every direction.

I never yet beheld a soil on its feathers. After expanding the wings it would bring them together so as to conceal the head, then, bending it gracefully, it would inspect the state of its plumage underneath. This action is repeated in quick succession, uttering at the time its croaking notes; it then pecks and cleans its plumage in every part within reach, and throwing out the elegant and delicate tuft of feathers underneath the wings, seemingly with much care, and with not a little pride, they are cleaned in succession, if required, by throwing them abroad, elevating, and passing them in succession through the bill. Then, turning its back to the spectator, the actions above-mentioned are repeated, but not in so careful a manner; elevating its tail and long shaft feathers, it raises the delicate plumage of a similar character to the sub-alar, forming a beautiful dorsal crest, and, throwing its feathers up with much grace, appears as proud as a lady dressed in her full ball-dress. Having completed the toilet,

he utters the usual cawing notes, at the same time looking archly at the spectators, as if ready to receive all the admiration that it considers its elegant form and display of plumage demands ; it then takes exercise by hopping in a rapid, but graceful manner, from one end of the upper perch to the other, and descends suddenly upon the second perch, close to the bars of the cage, looking-out for the grasshoppers, which it is accustomed to receive at this time. ♦

Should any person place his finger into the cage the bird darts at it rapidly ; if it is inserted and withdrawn quickly, the slightly-curved extremity of the upper mandible causes the intruder to receive a sharp peck, but if the finger is placed quietly in the cage, close to the beak of the animal, he grasps and thrusts it out, as if hinting that he dislikes its intrusion.

His prehensile power in the feet is very strong, and, still retaining his hold, the bird will turn himself round upon the perch. He delights to be sheltered from the glare of the sun, as that luminary is a great source of annoyance to him, if permitted to dart its fervent rays directly upon the cage. The iris frequently expanding and contracting, adds to the arch, wicked look of this animated bird, as he throws the head on one side to glance at visitors, utter-

ing the cawing notes, or barking aloud, to the astonishment of the auditors, who regard the bird as being in a very great rage at something or other beyond their conception. Having concluded, he jumps down to the lower perch in search of donations of living grasshoppers, seemingly in the most happy and good-humoured manner.

The bird is not at all ravenous in its habits of feeding ; but it eats rice leisurely, almost grain by grain. Should any of the insects thrown into his cage fall on the floor, he will not descend to them, appearing to be fearful that in so doing he should soil his delicate plumage ; he therefore seldom or ever descends, except to perform his ablutions in the pan of water placed at the bottom of the cage expressly for his use.

Near the "*Paradise Bird*," in another large cage, is the Superb Magpie, having all the thievish propensities, with the usual saucy manner of the tribe ; its plumage is beautiful, the principal colour being in splendid purple markings ; the bill is of an orange colour ; like dogs and children, it seems fond of being noticed ; it welcomes visitors by spreading its long and elegant tail, as well as by raising and showing off its pretty plumage to the best advantage, looking out sharply for insects, and, at the same time, uttering a peculiar noise which somewhat resem-

bles that which is heard from a monkey in distress. When insects are given to this bird, he is not so particular as his neighbour, but devours them instantly entire, either dead or alive, looking immediately afterwards for another supply. The food given to it is boiled rice, grasshoppers, &c. Like others of its tribe, it is fond of pilfering and concealing whatever is heedlessly left in its way, and it can carry off. To speak phrenologically, its acquisitiveness is large, and conscientiousness small.

Several beautiful Loris, from the islands of the eastern Archipelago, clothed in brilliant and gaudy plumage, are in the collection. Among these are the Amboyna and Ternate Loris, called Kustoree in the language of the natives; the King parrot of New South Wales, (*Platy-cercus scapulatus*,) and others of the parrot tribe from different parts of the world. I observed an Indian ring-neck parroquet, with its breast, for the whole extent, bare of feathers; (in which state it has been for five years and upwards, and as the glands are destroyed they cannot be renewed; the loss of plumage was attributed originally to giving the creature salt meat;) its long tail is quite perfect. This ridiculous-looking, half-fledged production of the parrot tribe, gets upon and clings to the bars of its cage on any person

approaching, and commences to exercise all its power of language to amuse the visitor. There are also some pretty *Minas* from Cochin China, who imitate, in their peculiar voice, not only all the sounds uttered by the birds around them, but also the various cries of the Chinese, when vending their wares about the streets ; the imitation is strictly correct.

From the lower garden,—which is filled with choice flowering shrubs and plants,—an ascent of a flight of steps brings the visitor to another garden on a terrace, to which there is also an entrance from the upper rooms of the dwelling-house : here the large and magnificent aviary is situated. Both in external appearance, and internal arrangement, there is a display of much taste and elegance, and every arrangement calculated to ensure comfort to its numerous feathered inhabitants. The aviary is forty feet in length by twenty in breadth, and probably thirty or forty feet high ; it is divided into two portions, having communications from one to the other, usually left open, but capable of being closed, if such a proceeding should be found necessary. It is situated on one side of the house, the windows of which look through the lattice-work into the aviary : the whole of the aviary, above and around, having a similar lattice

work of fine wire, surmounted by a dome at one part of the summit. The whole construction displays much neatness and taste, as well as being admirably calculated for the object in view; the wood-work, between the wire-lattice, is very ornamental; the song of some of the birds, with the bustle and twittering of others, as they hop about, or take their flight from tree to tree, has a very animating and pleasing effect from the sitting-rooms of the house.

In the aviary large trees and various shrubs are planted for the convenience of the inhabitants: in the branches of the former, small baskets, as nests, are placed for those birds whose habits cause them to build in trees, and in those places many of the present inhabitants of the aviary have been born and reared. Near a tank, constantly filled with water, a quantity of artificial rock-work is constructed, forming an ornament to the aviary as well as a place of utility for the birds of that class who are accustomed to such situations when at liberty, and who breed in the crevices; every precaution is likewise taken around the aviary to prevent the ingress of rats, who, by getting in when it was first constructed, caused much destruction among the feathered tribe.

It may certainly be said, that all the pets look

full of life, and happy and contented in their situation ; they chirp, sing, wash, feed, are merry, and, having abundance of room, their plumage looks healthy and beautiful, so unlike the dirty ragged appearance they soon exhibit when kept in a close, confined place, which, in a short period, brings on disease, and eventually death. Here they can wash themselves every morning, and they appear always eager to perform their matinal ablutions ; their unsullied plumage, the song or twitter of delight with which they reward their benefactor, show how happy and contented they are in their confinement.

In the aviary are separate cages, erected for the purpose of inclosing such of the males of any of the species, as may have their combative organs in too high a degree of excitement ; the punishment for such troublesome characters is, therefore, in the first place, solitary confinement, and should they not be reformed under that treatment, they are finally dismissed the aviary as incorrigibles.

It is delightful to visit the aviary at a very early hour in the morning, when the whole of the inhabitants are in the greatest confusion, the servants busily engaged in cleaning the habitation, and giving supplies of food to the colony ; the “ plummy people” appear in the plenitude of

happiness, hopping from branch to branch, or running along the ground, their little throats strain with harmony : the soft cooing of the numerous pigeon tribe is heard as well as the quacking sounds of the duck tribe, who are not gifted with any other more harmonious notes. It is at this time that we can also observe the querulous disposition of these animals. The males of one and the same kind, or of different species, endeavour to grasp all the supplies for themselves, unmindful of the wants of others, and will not permit their companions to perform their ablutions without molestation, although they may have themselves completed what they required. I often observed the mandarin ducks excite the drakes to attack other males or females of the same species, as well as any other kind of bird (not too powerful) in the aviary, against whom the lady may have taken a dislike from some cause or causes unknown to us : there always appears to be one pair, who exercise a tyranny over the others, not permitting them to wash, eat, or drink, unless at the pleasure of these little aristocrats.

As the shades of evening close in, the aviary is again in a bustle, the birds setting themselves in their various roosting places for the night, and keeping up a continual chattering, until the

whole colony is buried in silence and hidden in darkness. The Paradise Bird then sits tranquilly upon his perch, and no more greets the stranger, but stares in stupid amazement at the late visit. The cages of this, and the other birds in the verandah, are very carefully covered up at night to protect them from cats, or any other midnight prowlers.

It once happened, during a total eclipse of the sun, as that luminary became overshadowed, the "feathered colony," if not in a consternation at the event, was exceedingly puzzled at the rapid and unusual termination of the day, and all retired supperless to bed; they received, however, a second surprise at the briefness of the night, for before they could be well asleep, the cocks crowed at the reappearance of the luminary, and they again resumed their daily amusements and occupations.

CHAPTER IV.

Reeves's pheasants—Golden pheasants—Silver pheasants—Blue pigeons—Stabbed-breast pigeons—Widow birds—The horned Tragopan—The mandarin teal—Conjugal fidelity—Nicobar pigeons—Peacock pheasants—Pink cockatop—The Ounderou monkey—A Pitta—Mr. Beale's gardens—Rare productions of the vegetable kingdom—Native drawings—Extortionate custom.

IN the aviary, the beautiful *Phasianus veneratus* of Temminck; the *P. Reevesii* of Gray, now commonly known by the name of Reeves's Pheasant, was seen: it is the *Chee Kai** of the Chinese. The longest of the beautiful tail feathers of this bird are six feet in length, and are placed in the caps of the players, when acting military characters: this I observed at Canton, where some of the beautiful tail feathers (rather in a dirty condition, like the actors themselves, who, in their tawdry and dirty dresses, remind one of

* Kai usually expresses any birds of the gallinaceous tribe.

chimney-sweepers in London on May-day) were placed erect, on each side of their caps, as a decoration. The Chinese do not venerate this bird, as was first supposed, and which may have caused Temminck to bestow upon it the specific name of *veneratus*; but it is superstitiously believed that the blood of this bird is possessed of poisonous properties, and that the mandarins, when in expectation of losing their rank, and being suddenly put to death by order of the emperor, preserve some of it, in a dried state, upon a handkerchief, on sucking which they fall down and instantly expire. I heard the male of this bird, in the aviary, utter a very sweet, mild, and harmonious, whistling note, as it strutted about proudly, arrayed in its elegant plumage; occasionally approaching near the wires of its habitation, to let the visitors notice and admire him. The ends of the longest feathers of the tail in the living specimen were broken, although in this place of confinement there is much extent for his movements; but the feathers are too long ever to expect them to be preserved perfect in any confined place.

Mr. Beale first succeeded in procuring a living male specimen of this elegant bird in 1808, and kept it in a healthy state for thirteen years. After its death, he endeavoured to procure others, but

did not succeed until the year 1831. Four specimens were brought, from the interior of China, to Mr. Beale's aviary, and purchased for one hundred and thirty dollars. These specimens were those, I believe, subsequently taken to England by Mr. Reeves. A female of this elegant creature has not yet been procured, although large offers have been made for one. Much difficulty has been experienced in procuring from the Chinese, female birds of the Reeves's or golden pheasants : many think it proceeds from a desire of preventing the birds being bred ; but it may more correctly be attributable to the difficulty of persuading the Chinese that the females can at all be an object of attraction, or worthy of purchase, from being deficient in the brilliant plumage of the male birds ; and it is probable that they misunderstand the person who requests females to be brought, and therefore male specimens are usually brought in place of them. A drawing of this bird was sent to England, by Mr. Beale, in 1804 ; and on the death, before mentioned, of the first living specimen ever seen by Europeans in China, it was stuffed, and presented to a gentleman belonging to the Dutch Factory at Canton, who expressed a great desire to send it to Holland, as it would materially favour his interest at home : it was, therefore,

sent thither in 1817, or 1818, and was very probably the specimen from which Temminck's description was given.

The golden, or painted pheasants, (*Phasianus pictus*,) now so well known even at home, are decked in elegant plumage : it can, however, be no compliment to their harmonious blending of colours, to call them painted, although the epithet may be considered very applicable to their general gaudy appearance. Their brilliant tints excite more admiration in vulgar minds than the delicate pencilling of the silver pheasant, or the less gaudy but more elegant tinting of plumage in the Reeves's, or the ring-neck pheasants. The painted pheasant is called Kum, kai,* or Kin, kai, by the Chinese : the eggs of the bird are described as being white, with brown spots. These beautiful birds are brought from the districts of Chc, Kien, and Keang, nan.

The male of this bird, when courting the female, or bullying the males, conceals the purple feathers of the wings with the golden feathers of the back, at the same time bringing those feathers, seen like a hood upon the back of the neck, forward, and concealing the bill ; thus,

* In the common Canton dialect, Kum signifies gold ; but in the Mandarin dialect, Kin is the name for gold ; so that this bird is named both Kum, kai, and Kin, kai.

on whatever side the object of attack or courtship may be, the hood is so brought as to hide all but the sharp, bright eye. The attitudes of this, as well as of others of the pheasant tribe, are invariably graceful, whether upon the ground, or perched upon the branches of a tree.

The silver, or pencilled pheasants, the Pah, haan of the Chinese, were in fine plumage ; and among many other attractions in the collection, was the Wow, wow, or blue pigeon, of New South Wales, which has bred in the aviary. The present, full-grown and fine specimens of that bird, Mr. Beale told me, were the young of a pair originally brought from Australia. They were born and reared in the aviary, and the parents died a short time since. There were also several of the stabbed-breast pigeons, (*Columba cruenta*,) from Manilla, whose breasts exhibited the exact appearance of having received a wound ; the feathers, for a short distance, seeming to be smeared with the blood which flowed from it. What could have caused this very extraordinary and exact resemblance ?

Widow Birds are peculiar objects of attraction ; they are of a diminutive size, and their flight and hopping motion, when jumping or flitting from branch to branch, reminded one of the unsettled disposition of widows in most countries.

So rapid were their evolutions, that at times it was difficult for the eye to follow them. They had certainly a beautiful appearance, arrayed in their dark plumage, with a tinge of yellow over the male. The male of the widow-bird is like the female for four months of the year, about the spring season.

There is a species of *Tringa*, or Turnstone, which was lately brought by Captain Duran, who presented it to Mr. Beale : it was caught alive three hundred miles from the nearest land, in lat. 15° north, and 169° east longitude.

Another beautiful bird, which merits some notice, is that elegant creature, the *Tragopan satyrus*, or horned *Tragopan* : it is the *Tú, Xoú, Nieu*, of the Chinese, and may receive an appropriate English name in the *Medallion Pheasant*, from a beautiful membrane of resplendent colours, (more or less brilliant, according to the excitement the bird may be in at the time,) which is displayed or contracted at the will of the animal ; at which time its purple horns are also elevated : this appearance is usually observed during the months of January to March, when courting the female. In the contracted state it has merely the appearance of a purple skin under the lower mandible, and sometimes there is not the slightest indication of the existence of any

membrane in that situation. The colours are most brilliant, being principally purple, with bright red and green spots ; they are vivid and dazzling, varying, as in the wattle of the turkey-cock, according to the greater or lesser degree of passion exhibited by the bird. It is supposed, and no doubt correctly, that it is only to be found in the male specimens of this bird, for a female has not yet been seen. This beautiful appendage is never perceived to descend, excepting during the spring months or pairing season of the year. The birds in Mr. Beale's aviary were procured from the Yun-nan province, bordering upon the country of Thibet : he has not, however, succeeded in his endeavours to obtain females of this elegant bird. I have coloured drawings of this bird in my possession, correctly executed by a Chinese artist.*

* The brilliancy of the Chinese colours for painting, &c. has often been very highly extolled as being superior to the European. What surprise must it create, then, when we are informed that the colours used are of English manufacture, and the Chinese artists are eager for, and anxiously inquire after, them. This reminds me of the gross ignorance frequently displayed by our countrymen in foreign countries,— purchasing English articles abroad at a high price as foreign manufacture, and as unattainable in their native land. It was mentioned as a fact, that a person purchased an elegant London clock in a shop at Canton, at a high price, to take to

The Mandarin Téal, or *Een-yéong* of the Chinese, is also much and justly admired. The plumage of the drake is remarkably elegant, that of the female plain and undecorated. The male bird, however, during four months of the year, that is, from May to August, changes its beautiful plumage, and bears a close resemblance, at that time, to the female. This change is not confined solely to the tints of the feathers, but extends even to the epidermis of the mandibles. This bird, unlike the tribe, generally roosts in elevated situations, upon trees, high rocks, or over the windows of the aviary. These little creatures are regarded by the Chinese as emblems of conjugal fidelity, and are usually carried about in their marriage processions.

The following curious instance of fidelity was mentioned to me, as having occurred in the instance of two birds of this species:—A drake was stolen one night, with some other birds, from Mr. Beale's aviary; the beautiful male was alone taken; the poor duck, in spite of her quacks during the distressing scene, was left behind.

England as a specimen of China manufacture. Do not we see these follies committed by our countrymen almost every day at Paris?

The morning following the loss of her husband the female was seen in a most disconsolate condition ; brooding in secret sorrow, she remained in a retired part of the aviary, pondering over the severe loss she had just sustained.

Whilst she was thus delivering her soul to grief, a gay, prim drake, who had not long before lost his dear duck, which had been accidentally killed, trimmed his beautiful feathers, and, appearing quite handsome, pitying the forlorn condition of the bereaved, waddled towards her ; and, after devoting much of his time and all his attention to the unfortunate female, he offered her his protection, and made a thousand promises to treat her with more kindness and attention than her dear, dear, lost drake ; she, however, refused all his offers, having made, in audible quacks, a solemn vow to live and die a widow, if her mate did not return. From the day she met with her loss, she neglected her usual avocations ; her plumage became ragged and dirty ; she was regardless of her appearance ; forsook her food, and usual scenes of delight, where she loved to roam with him, now absent, and to excite his brave spirit to drive away all the rivals that might attempt even to approach them. But those fleeting hours

of enjoyment had passed, perhaps never to return ; and no consolation that could be offered by any of her tribe had the least effect. Every endeavour was made to recover the lost bird, as it was not expected that the beautiful creature would be killed.

Some time had elapsed after the loss, when a person, accidentally passing a hut, overheard some Chinese of the lower class conversing together ; he understood sufficient of their language to find out that they said, " It would be a pity to kill so handsome a bird."—" How, then," said another, " can we dispose of it ?" The hut was noted, as it was immediately suspected that the lost Mandarin drake was the subject of the conversation. A servant was sent, and, after some trouble, recovered the long-lost drake by paying four dollars for him. He was then brought back to the aviary in one of the usual cane cages.

As soon as the bird recognized the aviary, he expressed his joy by quacking vehemently and flapping his wings. An interval of three weeks had elapsed since he was taken away by force ; but when the forlorn duck heard the note of her lost husband, she quacked, even to screaming, with ecstasy, and flew as far as she could in the aviary to greet him on his return.

tion. Being let out from the cage, the drake immediately entered the aviary—the unfortunate couple were again united; they quacked, crossed necks, bathed together, and then are supposed to have related all their mutual hopes and fears during the long separation.

One word more on the unfortunate widower, who kindly offered consolation to the duck when overwhelmed with grief: she in a most ungrateful manner informed her drake of the impudent and gallant proposals he made to her during his absence;—it is merely supposition that she did so; but at all events the result was, that the recovered drake attacked the other, the day subsequent to his return, pecked his eyes out, and inflicted on him so many other injuries, as to occasion his death in a few days. Thus did this unfortunate drake meet with a premature and violent death for his kindness and attention to a disconsolate lady. It may perhaps be correctly written on a tablet over his grave—“*A victim to conjugal fidelity.*”

Several of the beautiful Nicobar pigeons are also in the aviary, and are usually seen perched upon the trees, even upon the loftiest branches. They build their rude nests and rear their young upon trees, similar to all the pigeon tribe. They usually come down to feed upon the ground, but

return to their elevated situation to repose during the night and most part of the day. Their plumage is of a splendid bronze, and their shape most graceful; but the long loose plumage pending from the breast, which they seem to delight in ruffling out, in some degree conceals their beauteous form, as seen in others of the tribe who have a smoother and more delicate plumage. These birds inhabit Sumatra, Nicobar, and other islands forming the eastern archipelago.*

Two elegant peacock pheasants from Cochin China; the jungle cock and hen from Java; the bright scarlet cardinal; the crested partridge from the Malay peninsula; the pretty and delicate Java sparrows; several of the Chinese water-fowl; and numerous doves, adorn and enliven this interesting place.†

* In Griffiths' *Animal Kingdom*, vol. viii. p. 275. Aves. this bird is mentioned as being "distinguished by its brilliant plumage; but it wants the elegant shape which distinguishes the true Columbæ. It remains by preference *generally on the ground*." It runs with great celerity, and constructs its nest like a partridge. It never perches, except to pass the night. Its cooing is hoarse and dull."

† Sweet potatoes are recommended as a good sea-stock for the purpose of feeding pigeons, birds of paradise, parrots, &c., as a variety of food on board a ship, as those birds often require fruit as a change of diet, which it is found impossible

A beautiful pink cockatoo; from the eastern islands, attached to a hanging perch, is placed near the aviary; and a large, elegant Persian cat, with fur of a most delicate silky texture, is seen attached by a long string to a tree. The docile creature reposes during the fine sunny weather upon the grass-plot in front of the aviary. The two latter are removed into the house at night, and placed in the garden during fine and serene weather.

Upon a large tree, also, on the terrace, near the aviary, is a fine female specimen of the Ounderou monkey of Ceylon (*Simia silenus et leonina*, Gm.). The fur of the animal is black, with a large white mane falling over on each side of the head. This specimen is nearly two feet high, but does not walk in the erect position. A house is placed for it in the branches of the tree, and the animal is secured by a chain, with a moveable ring, passing round a lofty bamboo, which communicates with the tree; so that Jenny, as the creature is called, can ascend or descend from the tree, and range for a certain extent through the branches, or for a short distance over the ground, when she descends. She is not readily

to keep on board during a long voyage; this root, therefore, given to them, either in a raw or boiled state, perfectly serves as a substitute.

attracted by strangers, unless they excite her *alimentiveness* by displaying some food. Her appearance is very ludicrous,—the black physiognomy peering through the huge white mane, when she is seen peeping from her kennel in the tree, exercising her secretiveness by pretending, when called, not to notice or understand, while, in reality, her attention is directed towards the person who may be addressing her. But, let some fruit be displayed—rapid as thought she slides down the bamboo, and is close to the object of attraction. Do not imagine, stranger, that you are the object of attraction—as in the plenitude of your vanity you might ;—no, she is paying a devoted attention to your donations of oranges or plantains, which having attained, she will soon forsake your society to enjoy the proceeds of her efforts upon the branches of the tree, far removed from your reach.

One morning, when I was visiting Mr. Beale, a bird had been just received, which was purchased in Canton from a Mantchow Tartar: it was a *Pitta*, and supposed to be the *P. brachyura* of Gould, figured in his splendid illustrations of the birds of the Himalaya mountains; but, from the red abdomen and vent, it appeared to accord more with the species called *P. erythrogastra* of Temminck; it was in excellent

condition, very tame, feeding on insects, boiled rice, &c. This specimen was mentioned as having been procured from Tartary; but the *habitat* of the first species is usually stated in our works on Natural History to be Ceylon and the Himalayas, and the second the Philippine islands.

Much care is required when the aviary is painted, to prevent the birds being injured, not alone from their pecking it, but, from getting the paint upon their feathers, as they eat it when cleaning their soiled plumage; the aviary is therefore painted as seldom as possible, and, when done, the interior of the painted part is lined with mats, until thoroughly dry.

The gardens around the dwelling-house display the taste of Mr. Beale, (in spite of the frequent destructive effects of the typhoons,) in arrangement, as well as choice of rare and valuable productions of the vegetable kingdom. Among others may be mentioned the *Laurus Cassia*, or China cinnamon, the leaves of which, and every part of the tree, yield, on being broken or rubbed, a most powerful and agreeable fragrance. Here also is a beautiful species of *Nauclea*, of the elevation of sixty or seventy feet, and a circumference of two feet; it was of straight growth, covered by a profusion of beau-

tiful flowers in corymbs, and was branchy only at or near the summit. There were also some young trees of *Cookea punctata*, which bears the fruit called Whampee by the Chinese, and another species of the same genus from Manilla, which differed, however, materially from the preceding, from the foliage having a very strong taste and smell of aniseed: from this peculiarity it has been named *Cookea anisetta*.

Besides a multitude of the *Chrysanthemum indica* of different brilliant hues, in which China is so prolific, both for the number, size, and beauty of the varieties, Mr. Beale has a low shrubby species from Japan, which bears a profusion of small dark-red flowers. I saw a beautiful drawing of one of the plants in full bloom, but the plant itself, at the time of my departure from Macao, had not entirely expanded its flowers.* There is a flourishing plant of the single Japanese *Caucus*,† nu-

* Mr. Beale assured me that for four years he has been endeavouring to get specimens of this shrub to England, but as yet without success, they having all perished on the passage.

† There were also some splendid large varieties of the *Hibiscus rosa chinensis*, of different tints; and the beautiful *Hibiscus mutabilis* changes its blossoms, after their expansion, from a white to a beautiful rose colour. The celebrated

merous varieties of the beautiful Chinese Camellias, several species of *Bauhinias* from India, and the Black Chilly plant also from India. The fruit of this latter plant, before attaining maturity, is perfectly black, or rather, as a true black does not exist in the vegetable kingdom, a purplish black, but when ripe it becomes red; the stem, &c. of the plant has also a dark tinge. Two species of *Annona*, indigenous to China, and removed from its wild state in the vicinity of Macao to this garden, particularly attracted my notice; one is probably an undescribed species; it is found growing upon the hills near Macao. The tree was now both in fruit and flower, the latter being very fragrant; the Chinese name it the Hill Annona, or, in their language, Shan, Ying, Chāo; the other species is the *A. uncata*, called by the Chinese, Ying, Chāo.

In a pond in the garden are some beautiful specimens of the Golden Carp, (*Cyprinus auratus*, Linn.) which inhabits the lakes of southern China; the tail has a trifid form, the anal fins become double, and they appear subject to several variations, which, when depicted in drawings, has caused many to regard them as

Mou-tan, or Peony, of China, I was told was merely a very large and splendid variety of the *Hibiscus rosa chinensis*.

merely specimens, proceeding from the imagination of the artist. At night the ponds are covered with a gauze frame, to preserve the finned creatures from nocturnal enemies ; but with all the precautions used, the kingfishers sometimes capture them, and many had received injury, although they escaped from those depredators.

A number of the Chinese varieties of oranges are in the garden, including the *Citrus nobilis*, or Mandarin orange, and numerous others.*

There were also several plants of a species of *Lycopodium*, planted in pots, and kept well watered ; it is an elegant species, rising from a stalk of about five inches in height, having on the summit its peculiar foliage, sometimes expanded and sometimes closed. This is a very ornamental plant ; it resembles the species given me at Manilla, which I was told had been procured from Mexico, where it is found growing upon the rocks ; and although kept for years in a dried state, revives and expands its foliage when placed in the water.†

* Besides the unequalled living collection of birds, &c., in the possession of this gentleman, his portfolios are stocked with a large and valuable collection of beautiful and correct drawings by Chinese artists, from nature, of birds, fish, plants, &c. indigenous to China and the eastern islands.

† The specimen to which I allude is named by the

There is a plantain-tree frequently seen growing in the gardens, which is called Fāā, tsicu, or red flowering plantain, by the Chinese. The anthers appear fertile, but it is said not to produce fruit; the flower proceeds from the centre of the upper part of the stem, growing erect, the scapes being of a crimson colour, frequently tipped with yellow: this plant has a very ornamental appearance in the gardens. I remarked also, in several of the plants, that many of the scapes become partially changed to floral leaflets, and the others remain in their original state.

The roots, or rather the creeping stem of the Lien, wha, of the Chinese, (*Nelumbium speciosum*,) are seen carried about for sale in the streets of Macao and Canton, as well as in large quantities in the bazaars. Although highly esteemed by the Chinese, I do not admire it as an esculent vegetable, being of a soft, pappy, and tasteless flavour; the only gratification derived from it is found in the growth of the plant and elegance of its blossom. According to Dr. Abel,

Spaniards *Triste de Corazon*, or Sorrow of the Heart; when dried and kept in that state for any length of time, and afterwards placed in water, (even after several years have elapsed,) its foliage expands, and reassumes a partial verdant appearance.

the Chinese cultivate and prize it above all other plants. "This splendid flower," he says, "celebrated for its beauty by the Chinese poets, and ranked for its virtues among the plants which, according to Chinese theology, enter into the beverage of immortality, flourished in the greatest vigour in the gardens of Tung, chow. Its tulip-like blossoms of many petals, tinted with the most delicate pink, hung over its fan-like leaves, floated on the surface of the water, or rising on long footstalks, of unequal height, bent them into elegant curves, and shaded with graceful festoons the plants beneath. Near Yuen-Ming-Yuen, and under the walls of Peking," continues Dr. Abel, "I saw it covering, with pink and yellow blossoms, large tracts of land, and could sympathise with the enthusiasm of the Chinese bards, who have sung of the delight of moonlight excursions on rivers, covered with the flowering Lien, wha. Its seeds, in size and form, like a small acorn without its cup, are eaten green, or dried as nuts, and are often preserved as sweetmeats; they have a nut-like flower. Its roots, sometimes as thick as the arm, of a pale green without, and whitish within, in a raw state, are eaten as fruit, being juicy, and of a sweetish and refreshing flavour, and when boiled are served as vegetables. The leaves are said to

possess a strengthening quality ; the seed vessel to cure the colic, to facilitate parturition, and to counteract the effects of poison.”*

The *Arachis hypogæa*, or ground nuts, are sold in great abundance in the bazaars, and about the streets of Macao and Canton, and are much eaten by the Chinese, who also extract an oil from the seeds for a variety of purposes.

Mr. Beale presented me with drawings by a Chinese artist, of the plants from which the pith, used in the manufacture of that kind of paper known to Europeans under the denomination of *rice-paper*, and that from which the fibre used in the manufacture of the *grass-cloth* is procured. I suspect that the fibre used for the Manilla senimaya, or grass-cloth, is not produced from the *Musa textilis*, as is commonly supposed, which point has not, although often asserted by writers, been actually decided ; it is more probably produced from a plant similar to that used by the Chinese, which is *Corchorus*, probably *capsularis*.

The following engraving is from the Chinese drawing.

The pith plant is procured from Oan, nāām, near the province of Sec, chuen, and is named, in the language of the country, *Toong*,

* Abel's China, 4to. pp. 121, 122.



CORCHORUS CAPSULARIS.

Shue,* and the following representation may convey some idea of the shrub, and assist persons visiting China to procure, if possible, specimens in flower or fructification.

The grass-cloth plant is produced in great abundance, both in a wild and cultivated state,

* I have several specimens of the pith, and one specimen I saw, nearly an inch in diameter, was hollow in the centre.

PITH PLANT.



TOONG SHUE.

in the provinces of Fo, kien, and Che, kien, and is named by the Chinese Māā, Shūc.*

That curious plant, the *Nepenthes distillatoria*, or monkey-cup of the Malays, is occasionally found abundant near running streams, upon the islands in the vicinity of Macao ; the Chinese

* Mr. Beale is making great efforts to procure both seeds and young plants, of the above-mentioned plants, and there is some expectations of success.

name it the pig-basket grass, (Chu, long, tzo,*) from the appendages or pitchers of the leaves having, when placed horizontally, some resemblance to the form of the baskets in which the pigs are carried to market. The Chinese avail themselves of the well-known obstinacy of these animals, and by that means succeed in getting the beast into the narrow conveyance; by placing the head of the animal close to the entrance of the basket, and pulling the creature by the tail, it enters immediately.

The dwarf trees are certainly one of the curiosities of the vegetable kingdom in China, being a joint production of nature and art: they are very small, placed in pots of various kinds, upon the backs of earthenware buffaloes, frogs, towers, and rockwork, which constitutes the Chinese taste in what these people would be pleased to term "ornamental gardening." The plants have all the growth and appearance of an antiquated tree, but of an exceedingly diminutive size. Elms, bamboos, and other trees, are treated in this manner, and are abundant in the nursery gardens about Macao and Canton: they are produced from young healthy branches, selected from a large tree, which, being decorticated and covered with a mixture of clay and chopped straw,

* Chu, signifying pig; long, basket; and tzo, grass.

as soon as they give out roots, are cut off and transplanted : the branches are then tied in the various forms required, so as to oblige them to grow in particular positions ; and many other methods are adopted to confine and prevent the spreading of the root ; the stems, or perhaps they might then be termed trunks, are smeared with sugar, and holes are bored in them, in which sugar is also placed to attract the ants, who, eating about it, give the trunk an appearance of age. I saw at Mr. Beale's a number of dwarf trees, which have been in his possession nearly forty years ; and the only operation performed to keep them in that peculiar and curious state, is to clip the sprigs that may sprout out too luxuriantly.

There is an infamous custom existing at Macao, obliging Europeans, arriving or taking their departure in Chinese boats, to pay several dollars to the mandarins. Great blame is certainly attached to the imbecility of the Portuguese government, for permitting such proceedings to take place in their city, and not far distant from the house of the governors. It has been said, " if strangers will resist the demand, the governor will support them." This is a miserable system of legislation, and can only be construed into a fear of the Chinese by the Macao government, which I

really believe is the truth. Strangers arriving are beset by these pug-nosed, pig's-eyed followers of the mandarins, and find they are absolutely forced to comply with their demands, except they choose to be bullied and severely beaten by a multitude, which has often taken place when resistance has been made to their demands. Why, if the governor has the power, does he not overthrow the chop-house into the sea, and by such active measures put a stop to the tax altogether? It is certainly disagreeable, after a long voyage, with ladies under your charge, to be bullied by these scoundrels, very probably some Portuguese soldiers and residents looking on at the same time without offering any assistance. It is not demanded of strangers at Canton : why, therefore, is it at Macao? A demand also is made separately for ladies landing ; and should a refusal take place, the unfortunate Chinese boatmen are squeezed, to satisfy the cupidity of the mandarins, or the ladies insulted. Passengers and goods landing in European boats are exempt from this imposition, as well as on embarking ; so that the tax is confined to Europeans embarking or arriving in Chinese boats.

CHAPTER V.

Leave Macao for Whampoa—Entrance to the Bocca Tigris—Country about Chuen, pee—Scene at Whampoa—Approach to Canton—The town and suburbs—The sailor's coffee-shop—Selling by weight—Dwarf orange trees—The tea shrub—Visit to the celebrated Fa-tee gardens—Topics of conversation—Exaggeration—Rambles in the suburbs—The city-gate—Manufactories—Sandal-wood.

ON the 16th of October I left Macao for the "Cum, sing, moon," and the following morning sailed in the Lady Hayes, Captain Hector, for Whampoa, which afforded me an excellent opportunity of viewing the scenery of the river. We passed the island of Lintin, off which, (in the roadstead, on the north-west side,) a number of ships were lying at anchor. About ten P. M. we anchored off Chuen, pee, for the night. On the morning following, as soon as the tide was favourable, we were again under weigh, and about

noon passed, with a light, but favourable breeze, the Bocca Tigris, and entered the river. This entrance to a very magnificent and extensive stream, is capable of being very strongly fortified. The Chinese have forts, mounting a great number of cannon, erected on each side of the passage: they excited some degree of interest in our minds, as being those silenced by the broadside of his Majesty's ship *Alceste*, some years since; a triumph of British firmness over Chinese impudence.

The country about Chuen, pee had a picturesque appearance; but although we hear so much related about the Chinese cultivating every spot of land, not leaving even the most barren spots unoccupied, in few countries have I seen more land left waste, much of which has an appearance of fertility: the valleys certainly were cultivated, and had an animated and pleasing feature in the landscape from the vivid green of the numerous plantations of what seemed to be sugar-cane scattered about. But with this exception, and the neat cottages nearly buried in the foliage of the trees surrounding them, there was no interesting view: the elevated land was, principally being barren, and uncultivated.

On entering the river, the scenery was very pleasing: the banks were low, and, for the most

part, under rice cultivation, which, still retaining its green tinge, imparted a luxuriant and animating beauty to the view. Small huts were scattered about, over which the graceful bamboo waved its towering stem ; the high and wooded hills arose in the distance of the back ground of the landscape ; and this, with boats passing about the intersecting canals of the paddy-fields, formed the principal feature of the country about the Canton river to Whampoa, where we arrived in the evening,* and left in a boat for Canton (a distance of twelve miles) on the following day.

The scene at Whampoa, with so large a number of shipping collected together, was remarkably animating ; and at this season, there was a noble addition of most of the ships of the Honourable East India Company, the finest class of merchant-ships in the world. On proceeding from Whampoa to Canton, the banks of the river were flat, and cultivated with wooded hills in the dis-

* We passed close to Tiger Island, with its lofty and rounded summits of hills. There is a heavily-mounted stone fort upon this island, but not in a commanding situation. There is no appearance of cultivation upon the island ; but it is verdant from a quantity of fern-brake and numerous stunted shrubs, &c. scattered about, which serve to give some animation to it.

tance, villages, pagodas,* which formed, in combination, some very interesting scenery. As we approached Canton, the bustle and multitude of boats increased upon the river: these boats contained whole families, who had been born and bred in them. They could often be seen containing the young sprawling infant, just able to walk, the new-born infant, and the aged grandmother, all reared in this confined space; but at the same time, the people wore an appearance of happiness and content upon their countenances, in spite of their squalid misery. They keep their boats, in a very neat and clean condition, which certainly confers some degree of credit upon the people. The flag-staffs and the noble pile of buildings, forming the factories of the different nations, appeared to our view; and, arriving soon after, I called upon and re-

* Several pagodas are seen erected upon elevated situations at certain distances up the river to Canton, and even beyond. Looking from the terrace of the Honourable East India Company's factory, it was observed, that they formed a line of watch-towers, and signals of lights from them could pass with rapidity from one to the other, forming excellent means of telegraphic communication, and, from their extending at certain distances up the river as far as the eye could reach, they are no doubt intended for that purpose.

mained during my residence in Canton with my friend, Mr. Whiteman.

Canton is generally said to possess but little, in the confined spot allotted to the range of Europeans, to interest the stranger. This may be partially correct ; but still the peculiar customs of the people and the range of the suburbs may afford many days of amusement, being novel, and unlike what is seen in any other country in the world. The range of factories or Honggs belonging to different nations, having flag-staffs, on which the national colours are hoisted from sunrise to sunset, are fine buildings, more especially those belonging to the English East India Company; which are of greater extent than the whole of the others. Several weeping willows are planted about the open space near the river, in front of the factories. The English and Dutch honggs have neat gardens, laid out for a promenade, in front of them ; but the open space before most of the others forms the " quarter-deck," where every evening the European residents take their limited walk.

The weather in front of the factories is usually at this season of the year sultry, but on entering the alleys of the honggs, cold currents of air are felt pouring down upon the just heated frame. A sudden atmospherical change very frequently

occurs, which certainly cannot be regarded as conducive to health, but, on the contrary, must prove highly detrimental: from the little ill-effects experienced from this by the residents, all that can be said on the subject is, that they probably get habituated to the frequent vicissitudes. There are two broad paved streets,* filled with shops, in which every description of manufactured articles, both after European and China patterns, can be purchased. Here are contained a profusion of specimens of the arts, more particularly those of ivory, tortoiseshell, and lacquered ware,† tempting to the visitor, and which soon cause him to return from Canton very deficient in the dollars he had brought with him.

In front of one of the shops was a lacquered board, upon which, in golden letters, was the following attraction for Jack, who may be accidentally rolling by the shop:—"The Sailor's Coffee Shop, Chan Lung, No. 10, New China Street, where all kinds of silks and teas are sold, and goods of every description for seamen.

* Named Old and New China Streets.

† There is another place much frequented by European visitors, called "Carpenter Square," which is confined for the most part to upholsterers, trunkmakers, &c. Here the camphor wood trunks are purchased, the majority of which, sold to strangers as such, are merely made from common wood, rubbed over with camphorated oil.

Sailors ! you are invited to try this shop, where you will find honest dealing, and where you can have ready made coffee and tea, but no samshoo." The rooms, for this purpose, were very neat, with small couches for honest and sober Jack to recline upon, some pamphlets and tracts to amuse his mind as he sipped the decoction of the Indian berry ; the shop contained straw hats, various portraits, and coarse articles of Chinese manufacture, tempting him to purchase for his friends and acquaintances at home ; and the owner appeared to be an intelligent man. Eatables are seen carried about the streets in great numbers, and of all descriptions. Dogs, cats, rats, living and dead ; with fowls, ducks, and other kinds of poultry, as well as living eels, carp, &c. in buckets of water : the latter are fed and fattened in stews, and taken out for sale when considered in a sufficiently prime state ; the fresh water fish are very insipid in taste.

Every thing living or dead, organic or inorganic, is sold by weight in this celestial country, whether it be fruit or ballast stones, oil or vegetables, living dogs or pigs, cats or poultry, they are all purchased by the catty. The dogs and pussies are highly esteemed by the Chinese, who convert them into delicious (according to their organs of taste) bow-wow soup, and rich

pussy broth. A Chinese does not appear to have any idea of measurement, for one was asked whether we should have much wind—"Yes, plenty catties of wind, by, by, come;" and when some gentlemen were taking observations of the sun, the Chinese observed upon them, that "they were weighing the sun." Eating shops are very numerous in the suburbs of Canton, containing an immense number of made dishes, and decorated also with enormous fat pigs, varnished over, and pendent from different parts of the shops, together with varnished ducks and geese; the latter birds are also dried and pressed, and then have a curious appearance.

One evening I visited the celebrated Fa, tee gardens, which are situated a short distance up the river, and on the opposite side to that upon which Canton is situated. On visiting these nursery gardens I certainly expected to have seen a splendid collection of Chinese plants and flowers, but I was sadly disappointed; the worst nursery garden in any of the provincial towns in Great Britain, was far, very far beyond any of these, both in size, extent, display of flowering plants and shrubs, even of the boasted flowers of China themselves. In how many of the greenhouses at home are not the *Azaleas*, *Cammelias*, *Chrysanthemum*, *Hibiscus*, &c. seen

in large and beautiful varieties, flourishing in the highest state of perfection? Yes, and equal to (except in a few novel varieties, which have not yet survived the voyage home) the boasted display in these wretched places, called “flower gardens.”

A board at the entrance of one of them has the following attractive notice painted upon it in English:—“Aching has for sale, fruit trees, flowering plants, and seeds of all kinds: Fa, tee gardens, No. 2.” The gardens merely contained some varieties of the Chrysanthemum, small trees of the Finger Citron, with that curious fruit tied upon them to look as if they were growing from the tree; and a number of dwarf orange trees of different varieties, laden with green and ripe fruit.

The Chinese procure the dwarf orange trees, laden with fruit, by selecting a branch of a larger tree upon which there may be a good supply of fruit: the cuticle being detached from one part of the branch, is plastered over with a mixture of clay and straw, until roots are given out, when the branch is cut off, planted in a pot, and thus forms a dwarf tree laden with fruit. Other means are adopted to give the trunk and bark an appearance of age, and these, with the dwarf bamboos and other trees, must certainly be re-

garded as the principal Chinese vegetable curiosities. As far as gardening, or laying out a garden is concerned, these people possess any thing but the idea of beauty or true taste, neither being in the least degree attended to in the arrangement of their gardens; every thing bears the semblance of being stiff, awkward, and perfectly unnatural. To distort nature a Chinese seems to consider the attainment of perfection.

At these gardens the different species and varieties of the tea shrub, both in seeds and young plants, can be procured. According to Chinese botany there exist many varieties as well as species of the tea shrub. The quality of the tea does not only depend upon the mode in which it is prepared, but also upon the soil where it is cultivated. They make a very minute distinction about the hills where the tea is grown, in the same manner as we do in regard to the vine. The Kwang Keun, fang pao, a work on Chinese botany, in forty volumes, treats largely upon the subject, and mentions every hill where good tea grows. Fokien province is the richest tea territory; but it grows more or less in all the provinces, except the northern ones. There are many species mentioned, which had never come under the notice of Europeans, and their flavour is highly ex-

tollèd. The writer of this work largely expatiates upon the wonderful qualities possessed by some trees, with all the vanity of a Chinese. He treats upon the modes in which the tea shrub is cultivated, and the crop gathered; but he possesses too much learning to be a good botanist, and quotes continually verses and the sayings of the ancients to embellish the subject. There is certainly, in the whole, more learning than good sense. He also treats upon how the seed is to be sown, how the leaves of the tea shrub ought to be prepared, and in what manner the shrub is to be pruned in order that it should produce luxuriant foliage. He also enters upon minute details, how the tea leaf is to be plucked, and afterwards dried and packed. Though the subject is trivial, it would require some study to make this work intelligible to Europeans.

The Rev. C. Gutzlaff, having looked over this botanical work in the Chinese language, favoured me with the above brief opinion on it.

The *Cycas revoluta* (Fung, maec, cho, of the Chinese) was planted in pots, and from being so generally seen about the dwellings of the people, I should consider was a favourite with them; a number of dwarf elms, bamboos, and other trees, with a number of varieties of *Hibiscus*, *Althæa*,

were Malva, were all these *celebrated gardens* contained.

The principal topics of conversation, as the space in front of the factories is traversed over and over again by the foreigners, are opium, Areka-nut, (erroneously called betel-nut,) pepper, rattans, and cotton. The different reports that have been set in motion, (gaining as they proceed from mouth to mouth during the day,) are discussed early in the morning: true, or untrue, is immaterial; every body credits them, and they serve *pour passer le temps*. If one person meets another, a cool bow of acknowledgment is made, and he passes on his way; or he may be doomed to run the gauntlet, if any important event has been started, with every one he meets, at the corner of every long, at the risk of being scorched by the sun, or, if taken under shelter, exposed to a chilling blast: as the day advances, he will find the tale increased to such an extent, that the person who heard it in the morning would hardly recognize the bantling by the evening: the three black crows is a mere trifle to some of their inventions: one relates mutinies happening on board an Indiaman, of the existence of which even the commander was ignorant: a slight illness of a lady at Macao, by the time it

reaches her husband at Canton, by passing from individual to individual, becomes a dangerous state, if not her actual decease; and at the time the intelligence is communicated to her afflicted husband, she is probably attending one of the gay evening conversational parties at Macao, in which one derives exceeding enjoyment, hearing the ladies "discourse most eloquent music," and mildly pass over the personal defects or mental faults of each other. One may very naturally therefore ask, "if anything has been invented this morning?" and if accuracy is requisite, how the news arrived, whose authority, &c.

. One person happened to say casually, of a long-missing ship, "Perhaps she has been dismasted, and put into Manilla, and that may account for her detention:" in the evening, a report was in circulation, and believed, that accounts had that day been received of the missing ship having safely arrived at Manilla, but that she had lost all her masts. It is therefore dangerous to make an observation; for should it not at first be deemed sufficiently important, it will soon be increased, both in intricacy and consequence, as it passes the daily course. Any person, then, who may visit China, will show his wisdom by preserving silence as much as possible, and he will

be lauded by some for the space of a few days ; then he will rise in importance, and every body will buzz and talk the most extraordinary things about him ; he will be a mystery, and all the residents will be delighted with him, for he will listen tranquilly, and in much of the conversation he will hear far more than he will in any way be inclined to believe. The trifling or casual passing observations are usually—"What news?" "None." "Fine weather?"—"Yes." "Warm?"—"Yes, exceedingly sultry." "Is opium getting up?"—"Have not heard. No arrivals?" "None! Good morning."

Taking rambles over the narrow streets of the suburbs of Canton, filled with elegant shops, strictly Chinese, with the various gilded signs, I witnessed a very novel and agreeable sight to a stranger: every thing assumed a different appearance to that seen in any other country: the narrow and crowded streets, hardly afford a passage for two persons abreast, and the constant passing and re-passing of porters with their burdens, bawling out to clear the way, is annoying to passengers. The shops are fitted up in an elegant style, and are, in many of the streets, exceedingly spacious: the shoemakers' shops are filled with shoes, from those of the small-footed woman decorated in a most tasteful and fanciful

manner, to the larger ones of the long-footed race. The shops of tailors, sign-painters, apothecaries, book and paper sellers, glass-blowers, &c. are numerous; and eating-shops, filled with all kinds of birds and beasts, cooked in their peculiar manner, and afterwards varnished; and poulterers' shops, with living and dead poultry of all descriptions, were in some of the streets very abundant.

On arriving at the large or principal gate leading into the city, strangers are not permitted to pass: there are also smaller wicket-gates, leading into the city, at other parts, at which persons are stationed to prevent foreigners from passing: several mandarins would occasionally be seen carried in their chairs, as well as some of the superior class of Chinese small-eyed beauties borne in a kind of sedan, upon the shoulders of coolies. On entering any of the shops, to see the process of manufacturing, every attention was paid us by the Chinese: one that attracted our attention, was the melting and manufacturing the lead into thin plates, for lining tea-caddies, chests, &c. This is effected by throwing rapidly the molten lead between two flat stones, upon the inner surfaces of each of which paper was placed, pasted by its edges upon the stone: as soon as the lead was thrown in, the upper stone

fell immediately upon the lower ; (the process is very simple ;) the upper stone is then taken off, and the sheet of lead removed. Their method of glass-blowing, cotton-cleaning, and spangle-manufactory, were also seen ; and we were readily permitted to view the various processes employed without any interruption. A walk about the streets of the suburbs I always found full of interest, as throwing much light upon the peculiar customs and manufactures of these extraordinary and industrious people.

It is well known that sandal-wood is esteemed by Europeans, on account of its being a valuable article of merchandize to China : the Chinese are particular, however, in their choice of the wood ; they prefer it when the pieces are about the diameter of the arm,* straight, smooth, of a dark colour, with a faint and agreeable smell, not the rank odour that some of the wood possesses. The yellow wood is inferior in the market ; and the very light yellow and white woods are too young, and almost, if not totally, unsaleable. The Chinese name for it, is Tan-heong ; (Taan, or Tan, being the

* If larger, but not rotten, in the heart, and also of good quality, it will be cut into pieces of the above size, and rounded.

name given to that particular tree ; and Heong, scented wood ;) and it sells from two and a half to twenty dollars the pecul, according to the quality of the wood. The usual size of the wood, as an article of commerce in China, is of a diameter of four or six inches, and a length of three or four feet ; from eight to twelve pieces of wood of that size usually weighing a pecul. A piece of sandal-wood, of the size just mentioned, is considered the most acceptable offering that a person can carry in his hand to present to the idols in the temples : the large pieces are the votive offering of a rich person, to burn on particular occasions, such for instance as at the commencement of the new year ; small pieces are then abundantly sold about the streets, for the lower class of people to purchase, for burning before the deities. “ The Canton people,” said a Chinese merchant, “ do not burn so much sandal-wood as those of the northern provinces, as in the latter superstition reigns to a greater extent than in the former.” *

In the plantations of this tree, belonging to the Honourable East India Company, upon the Coromandel coasts, it is not permitted to attain a large size, but is cut down when of a growth

* The sandal-wood brought from the Bonin Islands, I am informed, is of a very excellent quality.

and quality calculated to render it available for the China market. The wood is rasped by the Chinese, made into pastiles, and in that form burnt before the idols : the oil is said to be expressed from the wood, and also to be extracted by boiling or distillation. Sandal-wood oil is highly esteemed, by some persons, in herpetic eruptions.

The sandal-wood tree, (*Santalum*) is placed in the natural order Santalaceæ, class Tetrándria, order Monogynia. There are several species, but all have not wood possessed of fragrance. Of those from which the scented wood is procured I am acquainted with three species : two have been described, one the *Santalum myrtifolium*, found on the coast of Coromandel ; and *S. Freycinetianum*, found at the Sandwich Islands ; the other, an undescribed species, at the New Hebrides group ; the latter appearing to have an affinity to that found on the Coromandel shores.

The native names of the sandal-wood, in some of the countries where it is found indigenous, are as follow :—

Among the Malays, Jecndana. New Hebrides : Island of Erromanga, Nassau ; Island of Tanna, Nebissi ; Island of Annatom, Narti, niat. The Marquesa group, Bua ahi. The Island of Oparo, Turi, turi. At the Island of Tahiti (where it

has been found on the mountains, but is very scarce) and Eimco, Ahi. On the Malabar coast, Chandana cotte. In the Island of Timor, Aikamenil. In the Island of Amboyna, Ayasru. At the Fidji group, Iarsé. At the Sandwich Islands, Iliahi. .

Different varieties of the sandal-wood are likewise found in India, Eastern Archipelago, (more particularly in the islands to the eastward,) the Marquesas, Fidji, New Hebrides groups, &c.; the Island of Juan Fernandez; and have been occasionally found on the high mountains of Tahiti, Eimco, and Raivavae, or High Island. Mr. Crawford observes, (*Indian Archipelago*, vol. i. p. 419, 420,) respecting sandal-wood, that it is “a native of the Indian islands, and is found of three varieties, white, yellow, and red; the two first being most esteemed. From Java and Madura, eastward, it is scattered in small quantities throughout the different islands, improving in quantity and quality as we move to the east, until we reach Timor, whence the best and largest supply is obtained.” And he observes:—“In the western countries, where it either does not exist at all, or exists in small quantity and of bad quality; it is universally known by the Sanscrit name of Chandana, from whence it may be fair to infer, that

its use was taught by the Hindûs when they propagated their religion, in the ceremonies of which it is frequently employed."

The sandal-wood tree is most usually found in hilly districts and rocky situations ; and, when growing on low land, is of a degenerated quality. This latter circumstance is known to the Chinese ; for, at Singapore, a Chinese merchant observed, that the sandal-wood found growing on the rocky mountains contains the greatest quantity of oil, and is of more value than that which grows in low situations and rich soil, as the latter is found to have degenerated. On asking him from whence he derived his information, he stated, " from Chinese books." At the Friendly Islands they use the wood for scenting their cocoa-nut oil, and a piece of the wood is considered a valuable present by the chiefs ; they procure it occasionally from the Fidji Islands, and call it Ahi Fidji. The tree will not thrive at Tongatabu. The species found at the island of Erromanga (New Hebrides) has ovate, entire, smooth, petioled leaves, of a light-green colour above, whitish and distinctly veined underneath ; some of the leaves varied by being pointed. It is a tree of irregular and slow growth ; it attains the height of about eight feet without, and thirty feet with branches, and

about two feet in diameter. I always remarked, however, that after attaining a moderate size, it was invariably found rotten in the heart. Sandal-wood is very heavy, sinks in water, and the part of the tree which contains the essential oil (according to Cartheuser, one pound of the wood will yield two drachms of the oil) on which the agreeable odour depends, is the heart, the other portions of the tree being destitute of any fragrance: this portion is surrounded by a lighter wood of some thickness, denominated the sap, which is carefully removed from the heart-wood. Sandal-wood is sold by weight, and varies in price, according to the size and quality, from three to twenty dollars and upwards the pecul (one hundred and thirty-three pounds.) When young, the wood has a whitish colour, and possesses but little fragrance; as it increases in age it becomes of a yellowish colour, and when old of a brownish red colour, and at that period is most valued, from containing the greatest quantity of that essential oil on which its fragrance depends. It is considered that the wood is never attacked by insects: this opinion is erroneous, as I have seen the nidus of some species formed in it.

At the Sandwich Islands, the tree is named Iliahi, or Lauhala, signifying sweet wood, (lau,

wood ; hala, sweet,) and when young the tree is here of very elegant growth. At Wouhala (island of Oahu) I observed numbers of the young trees, some of which were covered by a profusion of beautiful flowers of a dark-red colour: the flowers, however, are often observed to differ in colour on the same tree, and even on the same stalk ; they grow in clusters, some having the corolla externally of a dark-red colour, and internally of a dull yellow ; others having it entirely of a dark-red, and others again have the corolla partly red and white externally ; the young leaves are of a dark-red colour, and give an elegant appearance to the tree. This was not observed in the species found at the island of Erromanga ; indeed, the species found at the Sandwich Islands had a more handsome appearance in its growth than that at Erromanga. At the Sandwich Islands, two varieties of the wood are observed by the natives, depending, however, only on the age of the tree ; the young or white wood is called lau, keo, keo ; (lau, wood ; keo, keo, white ;) and the red wood, lau, hula, hula ; (lau, wood ; hula, hula, red.) As before stated, the wood, when taken from a young tree, is white, containing but a small quantity of oil ; as the tree increases in growth, the wood becomes of a yellowish colour, and the

oldest and best is of a brownish red colour :* the different varieties of the wood depend, therefore, on the age of the tree, and are of three kinds, white, yellow, and red, of which the yellow and red (from containing the largest quantity of oil) are most esteemed in the Chinese market, where the wood is principally used, the expressed oil being mixed with pastiles, and burned before their idols in the temples, as I have before mentioned.

Indigenous to the Sandwich Islands is a species of *Myoporum*, (*M. tenuifolium*,) the heart of which is fragrant; and, from having been mistaken for sandal-wood, has received the name of spurious sandal-wood from Europeans, and is called *Naiho*, or *Naihio*, by the natives. The heart contains a quantity of essential oil; but the fragrance is not so agreeable as that derived from the sandal-wood, and for that reason it is not esteemed in the Chinese market; the heart is also surrounded by a lighter wood, termed the sap, as in the sandal-wood tree. An instance of the resemblance this bears to the sandal-wood, so as to deceive a common observer, occurred during my visit to the island of

* The wood is frequently buried, and the sap allowed to rot off; and this is considered to improve its quality.

Oahu, (Sandwich Islands,) in December, 1829. Two large pieces of the Naiho, deprived of the sap, were collected for me, and had been placed in the yard of a mercantile gentleman previously to my taking them on board. At this time there was some sandal-wood, of small size, weighing in the yard, to be sent on board an American ship about to sail for Canton. The supercargo, who was superintending the weighing, seeing these pieces, mistook them for sandal-wood; and, anxious to secure two such large pieces among the small kind which he had purchased, placed them in the scales, and they were sent on board with the rest, the person engaged in weighing being also ignorant of the difference. This circumstance was not discovered until some time after the ship had sailed: engaged in other pursuits, I had for some time forgotten my wood; but on inquiring for it, its disappearance was accounted for, after some time, by the cause just related. I was informed that a cargo of this wood was taken by an American ship to Canton; and, on its arrival there, it was only considered fit for firewood.

The name of a "spurious sandal-wood" is a source of alarm to those who, engaged in purchasing sandal-wood, are not able to judge of

the difference, or have only known the “spurious kind” by name. An instance of this occurred under my own observation. A vessel arrived from the New Hebrides group at the Bay of Islands, (New Zealand,) in July, 1829, having on board some sandal wood. This was purchased by the commander of a ship lying at that place; he had heard of the existence of a spurious kind when at the Sandwich Islands, but never having seen it, was unable to judge of the difference. When the sandal-wood came on board, it was found to consist of the white, yellow, and red varieties, having been procured from trees of different ages; that which was of a whitish colour, and had less fragrance than the other wood, was considered immediately to be what he had heard of as spurious wood, and was rejected, much to the annoyance of the owner, who declared it was all sandal-wood. This supposed spurious kind was laid aside, and was finally delivered to the cook for fire-wood; and, when burning, it diffused a delightful fragrance over the ship. Some of it was landed amongst the fire-wood from the same ship, at the Sandwich Islands, much to the surprise of some of the merchants, who thought that sandal-wood must be very common on board when it was used as fire-wood.

The Naiho (*Mýóporum tenuifólium*) attains the height of fifteen to twenty feet, and a circumference of three or four feet: the scented wood differs, according to the age of the tree, from a light-yellow to a reddish colour; the tree is branchy.

CHAPTER VI.

Visit to the Temple of Honan—Colossal figures—The priesthood—Votive offerings—Mummery—Holy pigs—Their corpulency—The hall of the factory—Duck-boats—Alabaster—Chinese snake—Leave Canton and return to Macao—Visit the Lappa Island—Hill-pines—Mass of granite rocks—Their sonorous qualities—Tanka-boats—Chinese burial-grounds—Cassilhas Bay—Manufacture of ropes—Portuguese ladies at Macao—Origin of that name—Another temple near Macao.

I VISITED one evening the Temple of Honan, situated a short distance on the opposite side of the river to that on which the factories are built. Having crossed, with my companions, in a boat, we proceeded a little way down the river, and landed at a dirty causeway near some timber-yards, in which a quantity of fir-timber, of China, of various dimensions, was piled with an extreme degree of regularity. The entrance to the temple or temples, and extensive grounds

about them, was close to the landing place ; and passing some miserable fruit and eating stalls adjoining, we noticed a large, clean, open space, planted with trees, and having in the centre a broad pavement of granite, kept very clean. The quietness that reigned within formed a pleasing retreat from the noise and bustle without.

This paved way brought us to the first portico ; here we beheld, on huge granite pedestals, a colossal figure on each side, placed there to guard the entrance to the Temple of Buddha ; the one on the right in entering is the warrior Chin, ke, and on the left is Ching, Lung.* After passing these terrific, colossal guards, we entered another somewhat similar court to the first, also planted with trees, and a granite foot-path, which led to one of the temples. At this time the priesthood were assembled, worshipping, chanting, striking gongs, arranged in rows, and frequently performing the *ko-tow*, in adoration of their gilded, senseless deity, of which a number of small and colossal figures, of the god Buddha, decorated a very handsome temple.

The priesthood performed their devotions by themselves, for there was not a Chinese present

* See Notices concerning China, published at Malacca in 1823, p. 10.

at the worship ; indeed the Chinese seem to have but little regard for religion ; they visit the temples early in the morning to make their offerings before the idols, and perform the usual religious ceremonies at sunset, but apparently more as a custom, than from any sincere religious devotion. I have seen the parents visit the temples at an early hour in the morning, bringing their family to adore the idols with them, each carrying tapers and offerings. The ceremony of prostration, &c. was gone through in so mechanical a manner, as to leave but little or no doubt in the mind of the spectator, that it was observed rather as a custom descended to them from their forefathers, than as arising from any sense of religious feeling towards a superior and benevolent Deity.

During a visit I made in company with Mr. Fearon to that picturesque and beautiful temple,* which is a subject of so much admiration, from its romantic situation, to all persons visiting Macao ;† a parent came with a lad six or seven

* It was in the rooms of the chief priest at this temple that Lord Amherst's embassy was lodged.

† The situation of this temple is near the inner harbour of Macao, and of a romantic and highly beautiful character. An image of a lion decorates each side of the granite steps,

years old, and a tottering infant, with offerings, which being arranged in one of the small temples before the idol, the father performed the ceremony of prostration ; the lad followed the example of his parent seemingly as a matter of

carved out of the same kind of stone, having a ball carved in their mouths, every attempt to take out which is found to be in vain, puzzling many ; (like the curious and elegant ivory balls, carved one within the other ;) there are also several groups of figures beautifully carved in granite in basso relievo. On entering, neat winding, and tastefully-executed granite steps, lead from little temples to other recesses for idol worship, amongst natural groups of granite rocks, piled one upon the other, as if by the fabled giants of old during their warfare ; huge trees, bending in various fantastic forms, overhang the temples, and cast a silence and gloom over this place devoted to pagan worship,—a place, however, well calculated to produce awe in the human mind, and to bind either still closer the fetters of bigotry, or, if it had been selected as the place of a truer worship, to cause the mind in this retired spot to commune more closely with its Creator. This spot, so beautiful, so delightful to behold, would form an elegant and valuable embellishment for one of our English annuals. I saw an accurate and delightful sketch of this religious spot taken by Chinnery, and a painting, half-finished, from that sketch, which even in that state reminded me of the original. I hope that talented artist will complete and send it home, so that an engraving may recall it to the memory of those who have seen, but may be now remote from its beauties.

course ; the young, unexpanded mind of the infant did not understand the meaning of it, but stared at us, and then at its parent ; the silence that prevailed corresponded with the solemnity that reigned in this sacred, romantic spot. I could not avoid reflecting at the time, that this infant would be brought to go mechanically through the pagan worship, to gaze on the tinsel and gaudiness of the temple and the gilded figure, before its mind had dawned ; it would awake in fetters, and follow implicitly the custom of its forefathers, satisfied with their blind superstition and pagan ignorance.

I must apologize for thus digressing, and return to the chanting priests in the temple, who, with shaven crowns, and arrayed in the yellow robes of the priests of Buddha, appeared to go through the mummary with devotion. They had the lowering look of bigotry, which constant habit had at last legibly written upon their countenances. The priests were evidently, in characteristic features, a distinct race from the Chinese, and came at the introduction of the Boodha religion into China, from some other parts of Asia, probably the Birmah empire.

As soon as the mummary had ceased, the priests all flocked out of the temple, adjourned

to their respective rooms, divested themselves of their official robes, and the senseless figures were left to themselves, with some lamps burning before them ; and the silence of the temple was a type of that portentous spectre, superstition. Another large and handsomely-adorned temple was situated beyond this, as well as numerous others, of smaller size, within the inclosure, all kept in a very neat and clean state.

Being soon satiated with the sight of gilded gods, and fanatical priests, mingled with all the gaudy paraphernalia of superstition, we adjourned to view the fat pigs which saluted us by their effluvia some time before we attained their dwelling,—where we beheld them luxuriating in a bed of filth, having nothing to do but undergo the laborious occupations of eating, drinking, sleeping, and getting fat : before them were sacred buckets, which had been probably filled with food, but were now empty. They were enormously fat, and seven or eight in number. Some persons informed me that they were kept until they died suffocated with fat ; but others said that they formed an annual sacrifice to the gods, during the grand festivals. These huge, filthy creatures, are so gross as to cause the mouths of the Chinese who behold

them to water with delight, in anticipation of the splendid dishes their carcasses would afford, to gratify their mortal appetites, exciting deep regret that they are to be devoted as ideal feasts only for immortals.

After wandering over this extensive inclosure, in which we met with no hindrance or molestation, I returned to Canton much gratified by the visit.

The hall of the factory of the Honorable East India Company, as well as the whole range of buildings, is very elegant. At one end of the large room in the building is a magnificent portrait of his late majesty George the Fourth, by Sir Thomas Lawrence ; and opposite to it, an accurate full-length portrait of Lord Amherst, by the same artist. On ascending to the terrace, above the building, a beautiful panoramic view of the city of Canton is obtained. The winding river crowded with boats ; numerous pagodas, as far as the eye could reach ; a fine view of Whampoa, and some of the shipping ; the number of paddy fields in the vicinity ; interspersed with habitations and plantations, with hills in the distance,—formed a scene both novel and interesting. I afterwards visited, in company with my friend, Mr. Whitman, the extensive tea hong of Kingqua, and

other of the hong merchants, which are well worthy the notice of a stranger.

Among the Chinese novelties to be seen in the vicinity of Canton, but more especially about Whampoa, are the *duck-boats*, used as residences for the owners and their families, as well as for their numerous feathered charge. The fledged bipeds inhabit the hold of the boat, and the human bipeds, or keepers, the upper accommodations of the vessel. These boats are most abundant about the rice-fields, near the river, soon after the harvest has been gathered in, as at that time the broad-billed animals glean the fields, and have a better prospect of a supply of food than at any other period. The owner of the boat moves it about from place to place, according to the opportunities that may be offered to him of feeding his flock.

On the arrival of the boat at the appointed spot, or one considered proper for feeding the quacking tribe, a signal of a whistle causes the flock to waddle in regular order from their domicile across the board placed for their accommodation, and then rambling about undergo the process of feeding. When it is considered by their keeper that they have gorged sufficiently, another signal is made for the return of the birds : immediately

upon hearing it, they congregate and re-enter the boat. The first duck that enters is rewarded with some paddy, the last is whipped for being dilatory ; so that it is ludicrous to see the last birds (knowing by sad experience the fate that awaits them) making efforts *en masse* to fly over the back of the others, to escape the chastisement inflicted upon the ultimate duck.

A large quantity of a kind of alabaster or gypsum is brought down from the northward in large junks to Canton ; it is called in the Chinese language *Shek, oo*, and is used by them, as well as by Europeans, in a pulverized state, as a dentifrice : it is also employed and highly esteemed by the Chinese as a *tisan*, for the purpose of allaying the ardent thirst in fevers, and is considered by them *nourishing* as well as cooling. It is pulverized and used in the adulteration of powdered sugar-candy, to which it bears in appearance a very close resemblance ; indeed, it is (except by the taste) not easy to distinguish one from the other.

Dr. Cox presented me with a specimen in spirits of a very venomous snake, which is not uncommon in China ; this one had some time since bitten a Chinese servant in the Dutch Hong, and occasioned his death in a few hours. The head of the

reptile in this specimen had been cut off by the Chinese who first arrived to the assistance of the wounded man, who having bruised it, had applied it as a poultice to the bitten part ; from which a query may arise, whether the poison mingled with the mashed head, being applied to the bitten part, may not have served to hasten the fatal termination.

This venomous reptile is called *white and black snake*, from its colours ; by the Chinese, *Pak, y, hak*, (pak signifying white, and hak, black). The largest size it has been seen to attain, has been three feet. The colour of the reptile is a bluish white, with black, circular, broad rings, around the body. The head (which I had an opportunity of examining in another and un mutilated specimen) was broad, flattened, with ten broad scales upon the upper and lateral parts ; and around the body, from one extremity to the other, there were forty-nine circular rings. The length of my specimen is nearly three feet.

The Chinese, just mentioned as having been bitten by this reptile, was described to me as being a stout, robust, and healthy man. The part of his body wounded, was on and about the little toe. He was bitten at eleven P. M., and in the space of an hour was quite

senseless. Before this, he described the pain as ascending rapidly up the body. It appears that when first bitten, he thought his assailant was a rat, and, kicking the reptile, he was re-bitten; and, altogether, was wounded three times: he expired a little before four A. M. This snake is said to be used by the Chinese as a medicine, being dried, pulverized, and administered as an internal remedy. During floods, these reptiles are very commonly seen about the houses, coming from the creeks up the drains into the kitchens: they very probably inhabit marshy places, and are often brought down during the freshes of the river, among the weeds, rushes, &c., and at that time may be descried sporting and swimming about the multitude of boats in the river. They are killed in numbers by the boatmen. During the late floods which prevailed at Canton, a number of these venomous reptiles were destroyed.*

I availed myself of the kind offer of Mr. Davis, and left Canton with him at daylight of the 28th

* * In September 1833, the floods of the river were so great, as to cause a considerable loss of lives and property. All business at Canton was transacted in boats, and the poorer class of people suffered much distress through a great part of China in consequence.

of October, in the Company's yacht for Macao, where, after a long, but agreeable passage, we arrived on the evening of the next day.

During my further stay at Macao, I visited one evening, in company with Mr. Davis, a place called the Lappa,* situated on the opposite side of the peninsula, upon which the city of Macao is erected, in the inner harbour. The lofty hills have a barren and uninteresting appearance; and there is nothing attractive in the aspect of that part of the country, until, on landing, a pathway leads to a delightful, picturesque, and fertile valley, smiling with the cultivated plantations of rice, yams, sweet potatoes, and interspersed by rural cottages, peeping through a dense crowd of bamboo, pandanus, and plantain trees. Near the beach was a cluster of wretched-looking huts; but the features of the country, both in its natural state, as well as improved by art, were pleasing as we advanced further up this pretty, sheltered valley.

The declivities of some of the hills on the

* "The Lappa, in Chinese, Tuy, meen, shan, is a small island opposite to Macao, forming the western side of the inner harbour. It affords room for a pleasant variety in walk and scene occasionally."—*Morrison's Comp. to Angl. Chin. Calendar*, 1832.

inner or sheltered side towards the valley; were covered by the Hill pines, or Shan, tchong* of the Chinese, the *Pinus sinensis* of botanists, of which I collected a few specimens in a state of fructification. Rivulets meandering through the valley, irrigate and fertilize the soil; and their banks are covered with a profusion of wild plants, a number of ferns, *Myrtus tomentosa*, *Sida*, *Urtica*, *Melastoma quinque-nervia*, (or Kai, chee, neem, of the Chinese,) and a multitude of others. From the cultivated, we came upon a wilder, more stony, and less beautiful part of the valley, among scattered masses of granite rocks, about which a wild and profuse vegetation was lavished.

At one part, my attention was directed to a mass of granite rocks, appearing as if they had been huddled together by some convulsion of nature, and many of them were found to be moveable, when trodden upon. Some of these were described as being sonorous; and as they were regarded as one of the Macao *lions*, they were of course well worth seeing, if it was only for the pleasure of relating to every one that *you had seen them*. The first, and by far the most sonorous, was partially excavated underneath; and by striking it upon the upper part, a deep

* Shan signifies hill; and tchong the pine tree.

sound like that of a church bell was produced. The battered appearance of the stone above, bore several proofs of how many visitors had made this *lion roar*. Many of the other rocks were also sonorous, but not so loud as the first; and from their situations, (although moveable when trodden upon,) it could not be seen whether they were naturally excavated similar to the preceding. The Lappa is a place to which the residents of Macao resort, forming pic-nic parties for the purposes of enjoying a change of scene in their limited place of residence, and deriving a gratification from the natural and cultivated beauties of this pretty valley.

We returned late in a *Tanka* boat. These boats, from their bearing some resemblance to a section of an egg, are called egg-boats, or egg people boats; *tan* signifying an egg, and *ka*, people: they are principally navigated by women. The egg-boat people, both males and females, are only permitted to intermarry among themselves. Some of the females have often a little claim to personal beauty.

The Chinese burial-grounds are never inclosed, and are usually seen situated on the slopes of the hills. The graves never being opened a second time, the burial-grounds take up a large quantity of land. I believe the handsome and ex-

tensive vaults are sometimes re-opened for the interment of a second corpse : the graves of the poorer class have merely a headstone, upon which Chinese characters are engraved, giving the name, family, &c. of the individual, whose mortal clay reposes beneath.

One of the promenades in the vicinity of Macao, is to a sandy bay, called Cassilha's Bay,* in which there was nothing to excite interest, having merely barren hills about it, and a distant view of islands. The only benefit derived from a visit to it, is the exercise of walking.

I remarked some Chinese one morning near Macao engaged in making some very durable ropes from rattan : the process of manufacture was but little different from that of hemp. The rattans were split longitudinally, soaked, and attached to a wheel, which one person was keeping in motion, whilst another was binding the split rattans together, adding others to the length from a quantity he carried around his waist, until the required length of the rope was completed.

The Portuguese ladies at Macao are, for the most part, possessed of but few attractions. The dark-eyed, beautiful damsels, the destroyers of

* So named by the Portuguese, after a picturesque spot of the same name, near the city of Lisbon.

so many hearts in Lisbon, are here seldom to be met with. The lower class may be seen covered by their mantilla, walking at a funereal pace to mass or confession ; the only duties for which a Portuguese female considers it worth while to take exercise. The higher class are carried from one street to another by negroes, in clumsy and tawdry palankeens.

I have before observed that Macao signifies in the Portuguese language a mallet; and the name has been given to it from the resemblance of the peninsula to that instrument; the sandy isthmus which runs out, connecting the elevated spot upon which Macao has been erected to the main land, resembles the handle. At the distance of about half-way across this sandy neck of land the Chinese barrier is erected, beyond which no European is suffered to pass.

The morning previous to my departure from Macao, I visited another Chinese temple, situated near the sandy isthmus. It had nothing to recommend it for picturesque or romantic beauty ; its interior was more extensive than the one I had previously visited. Passing through the temple, numerous granite rocks were scattered about the brow of a hill in their natural state, and upon many of them were Chinese inscriptions, probably moral sentences,

which the Chinese are so fond of teaching, but never trouble themselves about practising. Near the road side, and upon the summit of the hill, on the brow of which the inscriptions on the granite rocks just mentioned were remarked, were several small cone-shaped buildings, resembling somewhat the eastern Linguams. For what purpose they had been erected, I could not gain any information ; there were three a short distance apart, close to the road side, and another of large size situated in a very conspicuous spot upon the summit of a hill. The Linguams, if they may be so named, are rather more than five feet high, and constructed of brick plastered over ; in one the plaster had fallen off, leaving the brick exposed, evidently showing that not much attention was paid to them. At the base of the cone was a small square hole. The one situated upon the lofty summit of a hill, looked like a white conical land-mark ; I did not ascend to examine it.

CHAPTER VII.

The jesuits' church and college of San José—The gardens—Sail from Macao for Singapore—Pass Pedro Blanco—Island of Singapore—The town—Treaty for the cession of the island to the British—Hills—Salubrity of the settlement—European burial-ground—Vicinity of the settlement—Government hill—Grand prospect—Commercial prosperity—New roads.

I VISITED also the jesuits' church and college of San José. On entering the gate a high flight of granite steps leads up to the church; and, turning off to the right, on gaining the ascent, takes the visitor to the door, which leads him into those portions of the building devoted to the college residences of the professors, &c.; in a long room were some small but well-executed paintings of Portuguese famed in days of yore. Among others the poet Camoens, and Alvares, the discoverer of the Brazils, could be recognized. The college was founded for a certain

number of Chinese students, who were to study the Latin and Portuguese languages, so as to prepare them to proceed as missionaries into the interior provinces. They were sent to the provinces of Quang, ton, Quang, shce, and Fookien ; this class was paid by the Macao Portuguese government ; they were limited to ten, and the expense, defrayed by government, was twelve rupees a month to the padres, for which they were to provide the scholars with food, raiment, and lodging. Portuguese students are now admitted upon the foundation, the expenses being paid by the parents, which amount to eight dollars a month, the scholars having board and lodging, but providing themselves with clothing. The number of these is not limited ; they are instructed in Latin, Portuguese, Chinese, writing, and other branches of education : the establishment of the church, &c. is supported by the government.

The gardens attached to the establishment are kept in a very neat order, but present little attraction in flowers, either for butterflies or botanists. Among a number of vegetables under cultivation in one of the gardens was the *Pe, tsai*, (Pe, white ; tsai, vegetable,) or kind of cabbage, used in large quantities, and held in high estimation by the Chinese.

The gardens attached to this institution were planted upon terraces ; in them a species of *Althæa* with blue flowers, as well as another species bearing very large and splendid yellow blossoms ; several large and apparently old trees of the *Ficus religiosa*, and lofty *Plumeria* ; that beautiful species of *Dracæna* with dark red foliage and stem ; *Crotons*, with variegated foliage, imparting beauty to the gardens, were all particularly worthy of notice.

The church had nothing attractive in its internal decorations, being fitted up in the usual tawdry style of Roman Catholic churches, without elegance or taste.

On the 13th of November I sailed from Macao for Singapore, with fine weather, and the wind from north-east to east-north-east. On the 19th, Cape Varella was seen at noon, bearing north-west about thirty miles distant, and with continued breezes from the north-east and north-north-east : saw Pulo Sapata at noon of the 20th, the bearing being west half-south, about eighteen miles distant. On the 22nd, after squally weather, a hawk was for several mornings seen about the ship, occasioning the fowls to make a great noise at his presence ; we were then in latitude 6° 34' north, and longitude 106° 28' east. On the 24th at noon, Pulo Aor was in sight, bearing south-

west half-west; Pulo Pisang, west by south; Pulo Tinian, west half-north by compass. All these islands were elevated, and densely wooded.

On the 26th we passed *Pedro Blanco*, a reef of rocks some distance above the water, and situated in about the centre of the straits; a large number of birds, apparently terns, were about them. I had much doubt in my mind, whether the white appearance of the upper surface of these rocks was the effect of the dung of birds, but rather conjectured, in the absence of ocular proof, that it was of a calcareous nature. Observing a group of rocks not far distant from the settlement of Singapore, exhibiting the same white appearance on the surface above water as the *Pedro Blanco*, I determined to visit them for the purpose of examining their structure; on the evening of the day on which I observed it, I went out in a boat with some friends, but a very heavy swell prevented the attainment of my object at this time. The Malays in the boat, when they heard what I wished to ascertain, declared it to be produced by the first-mentioned cause; but on the following morning I succeeded in getting upon it, when my previously formed opinion was con-

firmed, by finding the upper surface calcareous, at some parts more or less discoloured. The formation of the rock was secondary, being of a red sandstone, and in many specimens, which I broke off, I observed a very minute line of sandstone, running through the calcareous substance ; although other parts of this rock were also calcareous, yet they had not a white appearance, from being covered and discoloured by marine conferva and minute crustaceous animals, to such an extent as to entirely lose their white appearance unless broken ; and the marine animals being constantly in the other rocks washed by the sea, which the high and white rock was not, caused a still further increase of marine weeds, &c. upon them. I collected some excellent specimens, showing the two different strata very distinctly.

About ten P. M. of the 26th, we anchored in Singapore roads ; and upon the following day I landed and took up my residence, during my stay at the settlement, with my friend Mr. Boustead.

The island of Singapore,* at the part on which

* This island is of an elliptical form, and is said to be about twenty-seven miles in its greatest length, and contain-

the settlement has been formed, has a very picturesque and beautiful appearance, when seen from the ships at anchor in the roads; and does not prove less attractive to the stranger on landing: the government hill, with its neat bungalow and flag-staff, forms a prominent feature in the view; and the undulating character of the land, with the thickly-timbered country in the distance, imparts a pleasing variety. Who can regard this settlement, so very recently established, yet now become a place of importance by the enterprise of British merchants, (almost unaided by any assistance from government,) without feeling how just the conclu-

ing an estimated area of about two hundred and seventy square miles. The latitude of Singapore flag-staff is in $1^{\circ} 17' 22''$ north, and longitude $103^{\circ} 51' 45''$ east.

Singapoor is derived from Sing-gah, signifying to call or touch at, bait, stop by the way, and Poor, a village. (generally fortified,) a town, &c. (Marsden's Malay Dictionary.) It is considered at this island, or rather at this part of the island where the town is now situated, (the name, however, has been given by Europeans to the whole island,) there was formerly a village, inhabited principally by fishermen. The Malays, who traded from the eastward to Malacca, and other of the ports to the westward, touched at this place. Singa also signifies a lion, (known by name only in the Malay countries,) from which the name of the island has been (no doubt erroneously) supposed to be derived.

sion is, that commerce can elevate the most barren and unproductive spot to a place of high importance? Look at the magnificent private mansions, warehouses, and the extent of commerce, showing the present and increasing wealth of this rising settlement. The town is erected upon the banks of a salt-water creek, more commonly named the Singapore river: one side contains the warehouses, offices, stores, &c. of the merchants and shopkeepers, as well as the native streets, bazaars, &c. Opposite to it is an extensive plain, adorned by several elegant mansions; and beyond the Kampong Glam,* and Malay town, with the residence of the sultan of Johore and his followers: from him the island was purchased by the British government, for which he still receives the annual pension which had been stipulated at the time. Close to the creek, which has received the more dignified appellation of the "Singapore river," wharfs extend from and opposite to the offices and warehouses of the merchants. The two most extensive and splendid buildings are those recently erected by Messrs. Armstrong and Gemmil. The Commercial Square contains some

* Kampong Glam, near Singapore, has its name derived, it is said, from Kampong, signifying a village, and Glam, the name of a particular kind of tree.

very good buildings, used as offices, shops, and residences ; the most conspicuous of which, for elegance, is the building used as offices and warehouses by the firm of Rawson, Holdsworth, and Co. The river, at the lower part of the settlement, always presents an animated scene, from the arrival and departure of native boats, with fruit, vegetables, and live stock, as well as from the number of neat sampans plying for hire, or attending upon the commanders of vessels, who employ them, in this sultry climate, in preference to exposing their crews to a tropical sun : many native boats lie waiting or delivering cargoes of the various productions of the fertile islands in the vicinity. At night, the flickering and brilliant lights from the numerous boats upon the river, make an animated appearance.

Rains are frequent at Singapore throughout the year, but more especially during the months of November, December, and January. The principal buildings are constructed of bricks, and roofed with red tiles ; but many of the Chinese dwellings and shops are constructed of wood. The roads in the town, and also in the vicinity of the settlement, are excellent, being of a mixture of sand with a clay iron ore, which make very durable roads. The markets at Singapore are well supplied with all kinds of pro-

vision, vegetables, and fruit; and considering how little the island in itself produces, and that the supplies are brought from Malacca and the neighbouring islands, are sold at a very cheap rate. The population of the settlement of Singapore consists of nearly twenty thousand, exclusive of the troops and convicts, (the troops being about five hundred, and the convicts eight hundred in number,) the majority of which is formed by the Chinese.

*Comparative Statement of the Census taken on the
1st January, 1833.*

	1832.		1833.		Increase.		Decrease.	
	Males.	Fem.	Males.	Fem.	Mal.	Fem.	Mal.	Fem.
Europeans	83	22	91	28	8	6	—	—
Indo-Britons	67	27	56	40	—	13	11	—
Native Christians ..	274	146	167	133	—	—	107	13
Armenians	20	6	27	8	7	2	—	—
Jews	5	—	2	—	—	—	3	—
Arabs	61	3	96	—	35	—	—	3
Malays	3748	3467	3763	3368	15	—	—	99
Chinese	7149	613	7650	867	501	254	—	—
Natives of the Coast of Coromandel.. }	1374	40	1762	57	388	17	—	—
Natives of Hindostan	408	121	389	116	—	—	19	5
Javanese	391	253	361	234	—	—	30	19
Bugis, Balinese, } &c. &c. }	735	692	794	932	59	240	—	—
Caffries	7	1	23	14	16	13	—	—
Parsees	2	—	—	—	—	—	2	—
Total	14324	5391	15181	5797	1029	545	172	139
Females	5391	—	5797	—	545	—	139	—
Total Inhabitants ...	19715	—	20978	—	1574	—	311	—
Deduct decrease	—	—	—	—	311	—	—	—
Increase in 1833	—	—	—	—	1263	—	—	—

Singapore Chronicle, Feb. 7, 1833.

Respecting the first settlement of Singapore :
“ In the first agreement,” says Crawford, “ with the native chief, the arrangement amounted to little more than a permission for the formation of a British factory and establishment, along two miles of the northern shore, and inland to the extent of the point-blank range of a cannon-shot. There was, in reality, no territorial cession giving a legal right of legislation. The only law which could have existed was the Malay code. The native chief was considered to be the proprietor of the land, even within the bounds of the British factory; and he was to be entitled, in perpetuity, to one half of such duties of customs as might hereafter be levied at the port. In the progress of the settlement, these arrangements were of course found highly inconvenient and embarrassing, and were annulled by the treaty I am about to describe.

“ The island of Singapore belonged to the Malayan principality of Johore, a state which probably was never of much consequence, and for the last century had been of none at all. Sultan Mahomet, the last prince, died about the year 1810, leaving no legitimate issue. No prince of his family assumed the throne in immediate succession to him, and the country was dismembered among his principal officers. The Bind

hara (treasurer or first minister) took to himself the territory of Pahang, on the eastern coast of the Malay peninsula, and is now commonly designated rajah of that place. The Tumangung, or chief judge, seized upon the corresponding territory, on the western side, with the adjacent islands. This is the person from whom we received the first grant of our factory. He informed me," continues Crawford, "that he had settled in Singapore for the first time, in 1811, a few months before our expedition passed through the harbour, on its route to the capture of Java.

"Sultan Mahomet had two illegitimate sons, who were competitors for the throne, but the claims of neither were attended to, and they continued in a state of vagrancy and poverty until the Dutch and English governments, for their own purposes, thought it necessary to patronize respectively one of the parties. One of them, now acknowledged Sultan of Jehore, and who still resides in the island, came over to it a short time after our first occupation, and was, in due course, placed upon our pension list. It was with this individual, and the inferior chief already named, that a treaty for the cession of the island was concluded in August, 1824. They received for the sovereignty and fee-simple

of the island, as well as of all the seas, straits, and islands lying within ten miles of its coasts, the sum of sixty thousand Spanish dollars, with an annuity of twenty-four thousand Spanish dollars during their natural lives; and it was farther guaranteed that they or their successors should receive a donation of thirty-five thousand Spanish dollars, should they be desirous at any time of quitting the British territory and retiring into their own dominions. Other articles of the treaty provided that neither party should interfere in the domestic quarrels of the other; that their highnesses should receive at all times an asylum and a hospitable reception at Singapore, should they be distressed in their own dominions; and that slavery, under whatever name or modification, should have no existence within the British territories.

“ This last subject had been a source of great annoyance, both to the native chiefs and to the local administration. Their highnesses claimed as slaves, not only their own retainers, but every Malay, coming from whatever part of the state of Johore. Their followers, where every one else was free, and labour well rewarded, were naturally impatient of this assumption; and the disputes which arose were the frequent cause of serious difficulties, both in maintaining the peace

of the settlement, and in the administration of justice. At present slavery is totally unknown in the island, for the treaty emancipated even the retainers of the native chiefs."*

I have quoted the foregoing extract to serve as an explanation of the first treaty, and to show how the possession of the island was permanently obtained by the British, which will be interesting to the many who may not have had an opportunity of becoming acquainted with the circumstances.

Besides the Government-hill, which rises in picturesque beauty behind the plain, upon which the settlement has been formed, there is an elevated hill to the westward, known by the name of Blackan Mattee,† on which there is a signal station, removed from St. John's Island. There are other elevated hills clothed with lofty timber trees, and rising inland, which bestow a picturesque character upon the scenery of the coast ; many of the

* Crawford's Embassy to Siam and Cochin China, 4to. pp. 565 to 567.

† Blackan Mattee is derived from the Malay word "Blackan," behind; and Mattee, dead or lost: it was supposed to be so named, because the hill, when this place was resorted to by pirates, concealed them from the view of the settlement or village—the present town. The explanation, however, of the name is not very satisfactory.

trees are found, on a nearer view, to be curious in their growth, and some of them valuable for their timber ; on their elevated summits, ferns of the genera *Achrosticum*, *Asplenium*, &c., or several parasitical *Orchideous* plants, are seen growing in profusion.

The settlement and island of Singapore is considered very salubrious. The small-pox, however, has lately been committing great and deadly ravages among the native residents ; of these, however, there were none upon whom vaccination had been performed. Many have been surprised at the healthy state of Singapore as a residence, when it is so near the equator, and the town surrounded by swamps, and even built upon a swamp ; but I have had occasion to remark more than once, that when the swamps result from salt-water creeks, the miasmata producing fever are not generated, as from fresh-water marshes, which usually abound in a very profuse and rank vegetation ; and Singapore may be said to be entirely destitute of rivers, the absence of which, however, is compensated by numerous salt-water creeks about the coasts, some of them extending inland for the distance of several miles. There is no deficiency, however, of good fresh water, which is procured from rivulets and springs, abundant about the island.

The European burial-ground is situated in rather a conspicuous spot, on a part of the declivity of the Government-hill; one part is planted with bamboos, which have a tasteful appearance, and the gloomy nature of the spot would be diminished if the fence of these trees was continued the whole way round the cemetery.

On riding or driving in the vicinity of the settlement, the character of the country and soil appears well calculated for the cultivation of coffee, sugar,* cotton, pepper, and other tropical productions, as well as of the vine. But most of the land is permitted to continue in a state of primitive jungle, industry and cultivation having been checked by the enormous quit-rents imposed upon the purchasers, or tenants of land, by the government. Until this ill-judged and ill-advised measure is changed, the cultivation of this beautiful island, now for the most part covered by a continued forest, cannot advance.

At this season but few flowers decorated the jungles, or sides of the roads; the one most commonly seen was the *Melastoma*, or Singapore rose, it principally animated the country by its

* The sugar-cane is cultivated to a very limited extent, and the canes I inspected were of very fine size and quality; they are only used, however, for edible purposes, no sugar being as yet manufactured from them.

blossoms, and charmed the eye, (fatigued by continually gazing on the green foliage without variety, although it gratified no other sense.

A pleasant evening drive, or promenade, is obtained upon the winding road leading to the Government-hill, which passes close by what was formerly, and even still retains the name of, the Botanic or Experimental Garden. Many of the hedges on this road are formed by an elegant small leaved bamboo, with its pendent branches drooping in graceful tufts, the tree itself not attaining the elevation usual with other more useful but less ornamental species: this bamboo forms a very beautiful, as well as compact fence. On attaining the gentle and gradual rise of the hill, the view that expands itself is both extensive and grand; embracing a wide portion of this splendid island, and causing feelings of regret in the mind of the spectator, that so much fertile land should be permitted to lie waste. Turning our eyes in another direction from the gloomy mass of forest scenery and undulating land, extending to the horizon, a more animated and pleasing scene is spread before us. Neat white houses and elegant mansions are seen on the open plain, or peeping above the dense vegetation when constructed upon a gentle rising hill. As far as the eye can reach over the tranquil

waters, small wooded islands stud the ocean, and more distant, land indistinctly appears. The river, or creek, is animated by numerous native boats of all classes, passing and repassing, engaged in various occupations, or lying tranquilly at rest, like the sea-bird upon the waters, after its toil is over.

In the roadstead the commercial prosperity of the settlement is indicated by the large number of ships of all classes, that there repose at anchor upon the bosom of the green waters, conveying merchandize to supply the wants of nations far distant. Flags of various European and eastern nations float in the breeze. The peculiar Cochin Chinese, Siamese, and Chinese junks, as well as the Bugis, and other prows, clustered together, animate the waters by their presence, showing to what a state of commercial prosperity this juvenile settlement has already attained. Long may it remain, still increasing, nor have its bright hopes crushed by party spirit or misgovernment, and may it one day cause the tide of civilization to flow over the immense extent of wilderness, inhabited by savage tribes, known to us only as the Malayan peninsula : such a day will doubtless appear—civilization, commerce, and religion, hand in hand, will be diffused amongst

these uncultivated people, for nothing is invincible to perseverance and industry.

Excellent roads are forming in the vicinity of the settlement, and there is one commenced to extend directly across the island. The road-gangs are composed of convicts from India, and the plans are under the able superintendence of Mr. Coleman, the colonial architect.

CHAPTER VIII.

Description of an Ungka ape—His habits—Anecdotes of him—His death—Dissection.

OBJECTS of natural history are frequently brought in a great variety by the proas from the different islands of the Eastern Archipelago. Prepared birds of paradise, and living Loris, pink cockatoos, and occasionally the magnificent Crowned, or Dampier's pigeons, as well as Rhinoceros birds, may be often purchased. An orang-utan was lately brought from Borneo to Singapore, by a commander of a vessel, who sold it for seventy-five dollars.

During a visit to Singapore, in 1830, I procured, through the kindness of E. Boustead, Esq., a male specimen of the Ungka ape, (*Hylobates syndactyla*.) The animal had been re-

cently brought by a Malay lad, in a proa, from the Menangkabau country, in the interior of Sumatra. The Malays at Singapore always called the creature Ungka; but I observe, in the Linnean Transactions, it is called by Sir Stamford Raffles, Siamang, and the Ungka is therein described as a different animal; the same as that under the name of Onko, in the splendid work on the Mammalia, (vols. v. and vi.) by F. Cuvier. The natives, however, at Singapore denied this being the Siamang, at the same time stating that the Siamang resembled it in form, but differed in having the eyebrows and hair around the face of a white colour.

The *Hylobates syndactyla* is described and figured also in Dr. Horsfield's Zoology of Java, but the engraving does not give a correct idea of the animal, nor have I as yet seen one that does. Three beautiful drawings were taken for me, from the specimen I possessed, after its death, in different positions; and having preserved the skeleton in the skin, its general appearance was more natural than stuffed specimens usually are; they were executed by the able pencil of Charles Landseer, Esq.

On board the ship *Sophia*, during the passage to England, ample opportunities were

afforded me to study this singularly interesting little animal. Its measurement was as follows :—From the os calcis to the vertex of the head, two feet four inches ; span of the arms, four feet ; length of the arm, from the axilla to the termination of the fore-finger, one foot ten and a half inches ; length of the leg, from the groin to the os calcis, eleven inches ; length from the xiphoid or ensiform cartilage to the crest of the pubis, seven and a half inches.

The teeth are twelve in each jaw ; four incisors, two canine, and six molares. In the upper jaw, the canine were placed widely apart from the last incisor, giving an appearance as if a tooth was deficient : this circumstance did not occur in the lower jaw. The teeth were in a very bad condition. In colour, the animal was of a beautiful jet black, being covered with coarse hair over the whole body. The face has no hair, except on the sides, as whiskers, and the hair stands forward from the forehead over the eyes : there is very little beard. The skin of the face is black ; the arms are very long, the radius and ulna being of greater length than the os humeri : the hair on the arms runs in one direction, viz. downwards ; that on the fore-arm, upwards ; the hands are long and nar-

row, fingers long and tapering; thumb short, not reaching farther than the first joint of the fore-finger; the palms of the hands and soles of the feet are bare and black; the legs are short, in proportion to the arms and body; the feet are long, prehensile, and, when the animal is in a sitting posture, are turned inwards, and the toes are usually bent. The first and second toes are united (except at the last joint) by a membrane. From this circumstance, the animal has derived its specific name. He invariably walks in the erect posture, when on a level surface; and then the arms either hang down, enabling him sometimes to assist himself with his knuckles; or, what is more usual, he keeps his arms uplifted, in nearly an erect position, with the hands pendent, ready to seize a rope, and climb up on the approach of danger, or on the obtrusion of strangers. He walks rather quick in the erect posture, but with a waddling gait, and is soon run down if, whilst pursued, he has no opportunity of escaping by climbing.

On the foot are five toes, the great toe being placed like the thumb of the hand: the form of the foot is somewhat similar to that of the hand, having an equal prehensile power; the great toe has a capability of much extension outwards, which enlarges the surface of the foot

when the animal walks. The toes are short ; the great toe is the longest. The eyes are close together, with the irides of a hazel colour ; the upper eyelids have lashes, the lower have none. The nose is confluent with the face, except at the nostrils, which are a little elevated. The mouth large, ears small, resembling the human, except in being deficient in the pendent lobe. He has nails on the fingers and toes, and has hard tubercles on the tuberosities of the ischium, but is destitute of a tail or even the rudiment of one.

His food is various : he preferred vegetable diet, as rice, plantains, &c., and was ravenously fond of carrots, of which we had some quantity preserved on board. Although, when at dinner, he would behave well, not intruding his paw into our plates, having “ acquired politeness,” as Jack would say, by being on board, yet, when the carrots appeared, all his decorum was lost, in his eager desire for them ; and it required some exertion to keep him from attacking them “ with tooth and paw,” unmindful whether we wished it or not, and against all the laws and regulations of the table. A piece of carrot would draw him from one end of the table to the other, over which he would walk, without disturbing a single article, although the ship was rolling at the time ; so admirably can these animals balance

themselves. This is well seen when they play about the rigging of a ship at sea : often, when springing from rope to rope, have I expected to see him buffeting the waves, and as often did I find that all my fears were groundless.

He would drink tea, coffee, or chocolate, but neither wine nor spirits. Of animal food, he prefers fowl ; but a lizard having been caught on board, it was placed before him, when he seized the reptile instantly in his paw, and greedily devoured it. He was also very fond of sweetmeats, such as jams, jellies, dates, &c. ; and no child with the " sweetest tooth " ever evinced more delight after " bons bons " than did this little creature. Some manilla sweet cakes that were on board he was always eager to procure, and would not unfrequently enter the cabin in which they were kept, and endeavour to lift up the cover of the jar : he was not less fond of onions, although their acridity caused him to sneeze and loll out his tongue : when he took one, he used to put it into his mouth, and immediately eat it with great rapidity.

The first instance I observed of his attachment to liberty, was soon after he had been presented to me by Mr. Boustead. On entering the yard in which he was tied up, one morning, I was

not well pleased at observing him busily engaged in removing his belt, to which the cord or chain was fixed, (which, as I afterwards understood, had been loosened on purpose,) at the same time whining, and uttering a peculiar squeaking noise. As soon as he had succeeded in procuring his liberty, he walked, in his usual erect posture, towards some Malays, who were standing near the place; and, after hugging the legs of several of the party, without, however, permitting them to take him in their arms, he went to a Malay lad, who seemed to be the object of his search; for, on meeting with him, he immediately climbed into his arms, and hugged him closely, having an expression, in both the look and manner, of gratification at being once again in the arms of him, who I now understood was his former master. When this lad sold the animal to Mr. Boustead, he was tied up in the courtyard of that gentleman's house, and his screams to get loose used to be a great annoyance to residents in the vicinity. Several times he effected his escape, and would then make for the water-side, the Malay lad being usually on board the proa, in which he had arrived from the Sumatra. He was never re-taken until, having reached the water, he could proceed no farther. The day previous

to sailing, I sent him on board. As the lad that originally brought him could not be found, a Malay servant to Mr. Boustead was deputed to take charge of him. The animal was a little troublesome at first, but afterwards became quiet in the boat. On arriving on board, he soon managed to make his escape, rewarding his conductor with a bite, as a parting remembrance, and ascended the rigging with such agility as to excite the astonishment and admiration of the crew. As the evening approached, the animal came down on the deck, and was readily secured. We found, however, in a day or two, that he was so docile when at liberty, and so very much irritated at being confined, that he was permitted to range about the deck or rigging. We sailed from Singapore for England with him, on the 18th of November 1830.

He usually, (on first coming on board,) after taking exercise about the rigging, retired to rest at sunset, on the maintop, coming on deck regularly at daylight. This continued until our arrival off the Cape, when experiencing a lower temperature, he expressed an eager desire to be taken to my arms, and to be permitted to pass the night in my cabin, for which he evinced such a decided partiality, that, on the return of warm weather, he would not retire to

the maintop, but seemed to have a determination to stay where he thought himself the most comfortable, and which I, at last, after much crying and solicitation from him, permitted.

He was not able to take up small objects with facility, on account of the disproportion of the size of the thumb to the fingers. The metacarpal bone of the thumb has the mobility of a first joint. The form of both the feet and hands gives a great prehensile power, fitted for the woods or forests, the natural *habitat* of these animals, where it must be almost an impossibility to capture an adult of the species alive.

Under the throat is a large black pouch, a continuation of the common integument, very thinly covered with hair, and not very visible when undistended. It has a corrugated appearance, extending from the under part of the chin to the throat, is attached as low down as the upper part of the sternum, and it is also attached above to the symphysis of the lower jaw. The use of this pouch has been a subject of much speculation : having the animal for some time with me, sleeping in the same apartment, I might be able to form some opinion on the subject. Its use is certainly not well known, though it is not improbable that it may be an appendage to the organ of voice. For often when irritated, I have observed

him inflate the pouch, uttering at the same time a hollow barking noise,* for the production of which the rushing of the air into the sac was evidently an adjunct. The inflation of the pouch was not, however, confined to anger ; for when pleased he would purse the mouth, drive the air with an audible noise into the sac ; when yawning, it was also inflated ; and in all instances, (except when excited by anger,) he would gradually empty the sac, as if he derived a pleasure from it. When the sac has been distended, I have often pressed on it, and forced the air contained within it into the mouth, the animal not evincing at the time any sign of its being an annoyance to him. When uttering the barking noise, the pouch is not inflated to the same extent as when he yawns. It has been stated in an American publication, that the use of the air sac is for a swimming bladder. It may be said in refutation, (if the assertion is not too absurd to refute,) that Ungka never evinced any partiality for swimming, although provided with such an apparatus ; but one day, thinking that a washing

* When the barking noise was made, the lips were pursed out, and the air driven into the sac, at the same time that the sound was uttered, the lower jaw was also a little protruded.

would be beneficial to the beast's coat, I placed him in a large tub of water : he was much frightened at his situation, and soon began to display a marked hydrophobic symptom, but not the least attempt was made to inflate the pouch, although he was frequently submersed. This animal is destitute of cheek pouches as a reservoir for food.

When sleeping, he lies along, either on the side or back, resting the head on the hands, and is always desirous of retiring to rest at sunset; it was at this time he would approach me uncalled for, making a peculiar begging, chirping noise; an indication that he wished to be taken into the cabin to be put to bed. Before I admitted him into my cabin, after having firmly stood against his piteous beseeching tones and cries, he would go up the rigging and take up his reposing place for the night in the maintop. He would often (I suppose from his approximation to civilization) indulge in bed some time after sunrise, and frequently when I awoke I have seen him lying on his back, his long arms stretched out, and, with eyes open, appearing as if buried in deep reflection. At sunset, when he was desirous of retiring to rest, he would approach his friends, uttering his peculiar chirping note, a beseeching

sound, begging to be taken into their arms ; his request once acceded to, he was as adhesive as Sinbad's old man of the sea ; any attempt to remove him being followed by violent screams. He could not endure disappointment, and, like the human species, was always better pleased when he had his own way ; when refused or disappointed at anything, he would display the freaks of temper of a spoiled child ; lie on the deck, roll about, throw his arms and legs in various attitudes and directions, dash every thing aside that might be within his reach, walk hurriedly, repeat the same scene over and over again, and utter the guttural notes of *ra, ra* ; the employment of coercive measures during the paroxysms reduced him in a short period to a system of obedience, and the violence of his temper by such means became in some degree checked. Often has he reminded me of that pest to society, a spoiled child, who may justly be defined as papa's pride, mamma's darling, the visitor's terror, and an annoyance to all the living animals, men and maid-servants, dogs, cats, &c. in the house that it might be inhabiting.

When he came, at sunset, to be taken into my arms, and was refused, he would fall into a paroxysm of rage ; but finding that unsuccessful,

and unattended to, he would mount the rigging, and hanging over that part of the deck on which I was walking, would suddenly drop himself into my arms.*

The sounds he uttered were various : when pleased at a recognition of his friends, he would utter a peculiar squeaking, chirping note ; when irritated, a hollow, barking noise was produced ; but when very angry, and frightened, or when chastised, the loud guttural sounds of *ra, ra, ra*, invariably followed. When I approached him for the first time in the morning, he greeted me with his chirping notes, advancing his face at the same time, as if intended for the purpose of salutation ; but I did not feel desirous of trying the experiment, as I knew these animals were not in the habit of kissing, and I well knew they were in the habit of biting.

His look was grave, and manner mild, and he was deficient in those mischievous tricks so peculiar to the monkey tribe in general. In only one instance did I experience any mischief from him, and that was in his meddling with my ink-

* The account of the orang-utan, given by Dr. Abel, in the *Narrative of a Journey in the Interior of China*, accords with the habits of this animal, and the comparison is very interesting.

stand : he seemed to have an extraordinary penchant for the black fluid—would drink the ink, (by placing his finger in the inkstand, and then sucking it,) and suck the pens, whenever an opportunity offered of gratifying this morbid propensity : his black coat did not suffer from his dabbling in ink, unlike many of the human species, who suffer both in constitution and apparel from meddling too much with it.

There was a degree of intelligence in the animal, beyond what is usually termed common instinct. These little miniatures of men,* (as they are satirically termed,) are said to possess more sagacity than other animals, and to be a close connecting link between the “powerful lord of the creation,” and creatures of an inferior

* “Hanno sailed from Sierra Leone southerly to the equinox, where he discovered an island, not far from the African coast, inhabited by a rough and hairy people, to take one of whom, he used all possible means, but could not : only two *women*, being encompassed by soldiers, were taken and carried aboard ; but being very savage, and barbarously wild, could not be tamed, or brought to any complacency ; so they killed them, and carried their stuffed-up skins to Carthage, where they were a long time gazed upon with *great admiration*. This island, which Hanno then found, can be no other but that which we call St. Thomas ; and the hairy people which he makes mention of were *habeons*, or *baboons*, which Africa, in this place, breeds large, to the amazement of the beholders.”—*Ogilby's America*, p. 20.

genus. If it be true, as I have heard asserted, that intelligence is written in legible characters on the os frontis of the monkey tribe, I beg to add, that mischief and cunning also beam in their eye.

One instance of a very close approximation to, if it may not be considered absolutely an exercise of, the reasoning faculty, occurred in this animal. Once or twice I lectured him on taking away my soap continually from the washing-place, which he would remove, for his amusement, from that place, and leave it about the cabin. One morning I was writing, the ape being present in the cabin, when casting my eyes towards him, I saw the little fellow taking the soap. I watched him, without his perceiving that I did so; and he occasionally would cast a furtive glance towards the place where I sat. I pretended to write; he seeing me busily occupied, took the soap, and moved away with it in his paw. When he had walked half the length of the cabin, I spoke quietly, without frightening him. The instant he found I saw him, he walked back again, and deposited the soap nearly in the same place from whence he had taken it. There was certainly something more than instinct in that action: he evidently betrayed a consciousness of having

done wrong, both by his first and last actions ; —and what is reason if that is not an exercise of it ?

When he walks in the erect posture, he turns the leg and foot outwards, which occasions him to have a waddling gait and to seem bow-legged. He would pace the deck, being held by his long arm ; and then had a resemblance to a child just learning to step. The limbs, from their muscular and strong prehensile power, render the animal a fit inhabitant for the forest ; enabling him to spring from tree to tree with an agility that we have frequently witnessed him display about the rigging of the ship : he would pass down the backstays, sometimes hanging by his hands, at others walking down them in the erect posture, like a rope-dancer, balancing himself by his long arms ; or he would spring from one rope at a great distance to another, or would drop from one above to another below.

Being aware of his inability to escape pursuit, when running on a level surface, his first object, when about to make an attack, was to secure a rope, and swing towards the object he was desirous of attacking ; if defeated, he eluded pursuit by climbing out of reach.

He has an awkward manner of drinking, by which the liquid is much wasted : he first applies

his lips to the liquid, throwing the head up, which in some degree may be attributed to the prominency of the lower jaw : and if the vessel in which the liquid is contained should be shallow, he dips the paw into it, and holding it over the mouth, lets the liquid drop in. I never observed him lap with the tongue when drinking ; but when tea or coffee was given to him, the lingual organ was carefully protruded for the purpose of ascertaining its temperature. This display of caution was not confined to this species of ape, as I know of several others which will do the same, when hot tea or coffee is given to them ; shaking their sapient head violently, if they are heated by the liquid ; but still, undeterred, will wait patiently until the hot liquid becomes sufficiently cool for bibulary purposes.

He soon knew the name of Ungka, which had been given to him, and would readily come to those to whom he was attached when called by that name. . His mildness of disposition and playfulness of manner made him a universal favourite with all on board.

He was playful, but preferred children to adults. He became particularly attached to a little Papuan child (Elau, a native of Erromanga, one of the New Hebrides group,) who was on

board, and whom it is not improbable he may have in some degree considered as having an affinity to his species. They were often seen sitting near the capstan, the animal with his long arm round her neck, lovingly eating biscuit together.

She would lead him about by his long arms, like an elder leading a younger child : and it was the height of the grotesque to witness him running round the capstan, pursued by, or pursuing, the child. He would waddle along, in the erect posture, at a rapid pace, sometimes aiding himself by his knuckles ; but when fatigued, he would spring aside, seize hold of the first rope he came to, and, ascending a short distance, regard himself as safe from pursuit.

In a playful manner he would roll on deck with the child, as if in a mock combat, pushing with his feet, (in which action he possessed great muscular power,) entwining his long arms around her, and pretending to bite ; or, seizing a rope, he would swing towards her, and, when efforts were made to seize him, would elude the grasp by swinging away ; or he would, by way of changing the plan of attack, drop suddenly on her from the ropes aloft, and then engage in various playful antics. He would play in a similar manner with adults ; but finding them usually too strong and rough for him, he pre-

ferred children, giving up his games with them, if any adults joined in the sports at the same time.

If, however, an attempt was made by the child to play with him, when he had no inclination, or after he had sustained some disappointment, he usually made a slight impression with his teeth on her arm, just sufficient to act as a warning, or a sharp hint, that no liberties were to be taken with his person ; or, as the child would say, "Ungka no like play now." Not unfrequently, a string being tied to his leg, the child would amuse herself by dragging the patient animal about the deck : this he would good-naturedly bear for some time, thinking, perhaps, it amused his little playmate ; but finding it last longer than he expected, he became tired of that fun, in which he had no share, except in being the sufferer ; he would then make endeavours to disengage himself and retire. If he found his efforts fruitless, he would quietly walk up to the child, make an impression with his teeth, in a ratio of hardness according to his treatment : that hint soon terminated the sport, and procured him his liberty.

There were also on board the ship several small monkeys, with whom Ungka was desirous of forming interesting conversaziones, to intro-

duce a social character among the race, wile away the tedious hours, which pass but tardily in a ship, and dissipate the monotony of the voyage: to this the little monkeys would not accede; they treated him as an outcast, and all cordially united to repel the approaches of the "little man in black," by chattering, and various other hostile movements peculiar to them.

Ungka, thus repelled in his kind endeavours to establish something like sociality amongst them, determined in his own mind to annoy and punish them for their impudence; so, the next time they united, as before, in a body, on his approach, he watched the opportunity, and when one was off his guard, seized a rope, and, swinging towards him, caught him by the tail, and hauled away upon it, much to the annoyance of the owner, who had no idea that such a retaliation was to take place; he continued pulling upon it, as if determined to detach it, until the agility and desperation of the monkey, at being so treated, obliged him to relinquish his hold. But it not unfrequently happened that he made his way up the rigging, dragging the monkey by the tail after him, and thus made him follow his course most unwillingly. If in his ascent he required both hands, he would pass the tail of his captive into the

prehensile power of his foot. It was the most grotesque scene imaginable, and will long remain in the remembrance of those who witnessed it, and was performed by Ungka with the most perfect gravity of countenance, whilst the poor suffering monkey grinned, chattered, twisted about, making the most strenuous endeavours to escape from his opponent's grasp. His countenance, at all times a figure of fun, now had terror added to it, increasing the delineation of beauty ; and when the poor beast had been dragged some distance up the rigging, Ungka, tired of his labour, would suddenly let go his hold on the tail, when it would require some skill on the part of the monkey to seize a rope, to prevent his receiving a compound fracture by a rapid descent on deck. Ungka, having himself no caudal extremity, knew well that he was perfectly free from any retaliation on the part of his opponents.

As this mode of treatment was far from being either amusing or instructive to the monkeys, they assembled together in an *executive council*, where it was determined, that in future the "big black stranger," who did not accord with them in proportions, and who demeaned himself by walking erect, wearing no tail, and was in several other respects guilty of

unmonkey-like conduct, should be for the future avoided and treated with contempt ; and should he again think proper to assault any of the body, they should all unite, and punish him for his violent conduct. Ungka, when again he made any attempt to renew his amusement of pulling tails, met with such a warm reception from all the little creatures assembled, that he found it necessary to give up *tail bearing*, and devote himself to other pursuits. He had, however, such an inclination to *draw out tales*, that being obliged from "peculiar circumstances" to relinquish those of the monkeys, he cultivated the friendship of a little clean pig that ran about the deck, and, taking his tail in hand, endeavoured, by frequent pulling, to reduce it from a curled to a straight form ; but all his efforts were in vain, although piggy did not express any ill-feeling at his kind endeavours.

When dinner was announced by the steward, and the captain and officers assembled in the cuddy, then Ungka, considering himself as also one of the mess, would be seen bending his steps towards the cuddy, and entering took his station, on a corner of the table, between the captain and myself ; there he remained waiting for his share of the food, considering that we were all in duty and humanity bound to supply

him with a sufficiency of provender. When from any of his ludicrous actions at table we all burst out in loud laughter, he would vent his indignation at being made the subject of ridicule, by uttering his peculiar hollow barking noise, at the same time inflating the air sac, and regarding the persons laughing with a most serious look, until they had ceased, when he would quietly resume his dinner.

The animal had an utter dislike to confinement, and was of such a social disposition as always to prefer company, to being left alone : when shut up his rage was very violent, throwing every thing about that was lying near, or that he could move, in his place of confinement, but becoming perfectly quiet when released. When the animal was standing with his back towards the spectator, his being tail-less, and standing erect, gave him the appearance of a little black hairy man ; and such an object might easily have been regarded by the superstitious as one of the infernal imps.

When he walks, to use a nautical phrase, " he sways the body," and stepping at once on the whole of the under surface of the foot, occasions a pattering noise, like that which is heard when a duck, or any aquatic bird, walks on the deck of a ship.

When the weather is cold, he may be seen huddled together, loses all his lively and playful manner, sleeping much during the day, and giving up all kind of exercise. Like the Lascars, who, as long as the weather is hot, are capable of any duty, but when they arrive in a northern climate, exposed to the bleak winds, they sink into a state of inaction, from which it is almost impossible to rouse them; and many perish, as much from the want of exercise as from the effects of climate.* The return of warm weather imparted life to the animal, his activity returned, his spirits revived, and his gambols and sportive gaiety were resumed.

Although every kindness was shown to him by the officers and crew, and sweetmeats and other niceties were given to him by them by way of bribes, to engage his confidence and good opinion, yet he would not permit himself to be taken in the arms, or caressed familiarly by any person on board during the voyage, except by the commander, the third officer, and

* I have heard that the natives of Terra del Fuego, who were lately brought to England, when they arrived in the hot latitudes, would lie down and roll about the decks of the ship which conveyed them from their native land, exclaiming, "Why they had been brought into this fiery country?"

myself; but with any of the children he would readily gambol. It was a strange fact, that he in particular avoided all those who wore large bushy whiskers.

It was ludicrous to behold the terrified looks of the animal, if his finger was taken towards a cup of hot tea, as if to ascertain the temperature; and his attempt at remonstrating on the impropriety of such conduct, together with his half-suppressed screams, were very diverting.

Among other amusements, he would frequently hang from a rope by one arm; and, when in a frolicsome humour, frisk about, with his eyes shut, giving him the appearance of a person hanging, and in the agonies of death.

When we spoke a ship at sea, his curiosity seemed to be much excited by the novel object near us, for he would invariably mount up the rigging, at a height sufficient to command a good view of the stranger, and sometimes take up his position on the peak halyards, just under the flag, a signal, difficult no doubt for the stranger to comprehend; there he would remain gazing wistfully after the departing stranger, until he was out of sight—"give one parting, lingering look," and then come down on the deck again, and resume the sports from which the stranger's appearance had disturbed him.

When strangers came on board he approached them with caution, and at such a distance, as he considered consistent with his ideas of safety. To the ladies he did not evince any partiality; we had none on board by which we could judge whether a few days or weeks of their powerful fascinations would have any effect on him. The only lady who had honoured him with her notice was one who came on board from a ship we spoke at sea; he evinced, however, no partiality to the gentle sex, and would not permit her to caress him: whether it was the bonnet, which was of the calibre of 1828, or other portions of the lady's dress, that excited his indignation, I cannot say, as the animal could not communicate his opinions; whatever the cause might have been, he was evidently not eager to become acquainted with her, but would show a disposition to bite if she attempted to caress him. As she appeared at first timid of approaching him, this show of warfare may have been occasioned by it, and in some degree have made the cunning brute keep up the feeling. I was acquainted with a lady in Ceylon, who, having been bitten by a cockatoo, always evinced great terror at the approach of one which was kept by her Ayah, or lady's-maid, in the

house : the bird appeared aware of it, for, when he saw the lady approach, he would flap his wings, elevate his crest, shriek out, and at the same time pretend to pursue her, at which she ran away quite terrified.

When the poor animal lay on the bed of sickness, from dysentery, produced by the cold, there was as much inquiry after his health, by the officers and crew, as if he had been of "human form divine," for he was a universal favourite on board ; and there was much regret when he died—all his gambols and playful antics ceasing for ever. His skin, properly stuffed and preserved in its natural erect attitude, was kept to be consigned, on our arrival in England, to one of the glass-cases in the British Museum, where he was eventually deposited.*

His death occurred as follows :—On the 19th of March, 1831, we had reached the latitude $45^{\circ} 41'$ north, and longitude $24^{\circ} 40'$ west. The animal seemed (although clothed in flannel, and kept in my cabin) to suffer much from cold, and

* The ape and monkey tribe, although approaching so near the human race in external appearance, as well as in its omnivorous habits of diet, still differs materially in not being able to sustain a change of climate ; nor is it readily inured to a cold climate, if a native of the tropical regions.

was attacked by dysentery. He would prefer going on the deck, in the cold air, with the persons to whom he was attached, to remaining in the warm cabin with those whom he did not regard. On the 24th he became much worse, his appetite gone, and he had a dislike of being moved; the discharge from the bowels was bilious, mixed with blood and mucus, sometimes entirely of blood and mucus, with a putrescent odour. The breath had a sickly smell, mouth clammy, eyes dull and suffused; he drank a little water occasionally, and sometimes a little tea. I gave the usual remedies of calomel and opium, as if I was treating dysentery in a human being, and although I was obliged to put the medicine down his throat myself, the animal made no resistance; and on a renewal of the doses, did not attempt to prevent it, as if aware that it was intended for his benefit. He generally remained with his head hanging on the breast, and limbs huddled together; he would, however, when yawning, inflate the pouch as usual.

On the 29th we were detained in the "chops of the channel," by prevailing easterly winds; and he daily sank until the 31st of March, when he died, in latitude $48^{\circ} 36'$ north, longitude $9^{\circ} 1'$ west.

On examination of the body soon after death,

the thoracic viscera were found perfectly healthy, and differing from the orang-utan,* in being subdivided on each side, the right lung having three, and the left two lobes, as in the human subject. The lungs were perfectly free from tubercles; the spleen was healthy, of small size, and lobulated at one extremity; the liver was large and healthy; the difference in size between that organ and the spleen was considerable, in comparison with the relative proportions of those organs in the human subject. Mr. Owen does not remark, in the dissection of the orang-utan, whether this difference of size in the two organs exists also in that animal; the gall-bladder contained a small quantity of dark, thick, and viscid bile; several of the mesenteric glands were enlarged, some being of a white, others of a dark colour.

On laying open the duodenum, it was found to contain a quantity of mucus, slightly tinged with bile; the colon and cœcum were full of liquid bilious fœces, mixed with mucus, and several small ulcerated patches were seen on the inner surface, and a dark spotted appearance at

* The lungs in the orang-utan are entire on each side, and not divided into lobes. See my friend Mr. Owen's Dissection of the Orang-utan, in No. I. of the *Proceedings of the Zoological Society of London*.

other parts: the rectum also contained similar fœces, but mixed with a curdy matter; and there were several large patches of ulceration on the inner coat,* more particularly near the termination of the gut; the kidneys were healthy; on the right the capsula renalis was large, but none was seen on the left; the bladder was quite empty, the inner surface scarcely moist. The animal had been castrated, but the spermatic cord terminated in the scrotum in two small oval substances, rather larger than small peas; the sacrum and os coccygis were similar to those parts in the human subject.

The communication of the larynx was examined; the epiglottis was only indicated by a slight obtuse angular rising; the sacculi laryngis were three-eighths of an inch in the long diameter, one-eighth in the short; their margins were well defined, continued forwards, below the body of the os hyoides, into a membranous sac, situated beneath the external thick one.† This animal has one common sac, and thus differs from the orang-utan, which has two. The

* A portion of the ulcerated intestine has been deposited in the Museum of the Royal College of Surgeons in London.

† The larynx and appendages have been deposited in the Museum of the Royal College of Surgeons in London.

extremities of the bones of the animal were cartilaginous.

The Angola orang (*Simia troglodytes*, Linn.) has been considered the most perfect of animals, much more so than the Indian orang, (*Simia satyrus*,) which has been called the orang-utan, although *both* are *very inferior* to man in corporal powers and intelligence. When the Indian orang is compelled to take flight from pressing danger, he immediately falls down upon all fours, showing clearly that this was the original position of the animal.*

This assertion is correct according to my own observation, as far as regards the orang-utan, and many of the Gibbons, who maintain the erect posture only for a short period ; but I found the Ungka ape of Sumatra, (*Simia syndactyla*,) although, similar to the orang-utan, he would occasionally aid himself by the knuckles when walking, yet would maintain a more erect posture than I have ever observed in the latter animal, besides his general form of body and countenance assimilating more to the human being than the orang. I have seen the Ungka, when pursued, continue to maintain the erect position for some time, until through fatigue, or more probably from terror, he would fall to the ground, be-

* Lyell's Principles of Geology, vol. ii. p. 15.

coming an easy capture ; but let the ropes of a ship, or any trees, be within reach, he would then avail himself of the powerful, prehensile, and muscular power bestowed upon him by nature, and whether over the rigging of the ship, or the branches of the trees, he would then have sufficient strength and agility to defy pursuit, although he could not effect it on a level surface.

CHAPTER IX.

The Botanic Garden—The *Croton tiglium*—The true Camphor-tree—The *Malaleuca Kayu-puteh*—Excursion into the interior of the island—Botanical productions—Chinese farms and plantations—Pepper harvest—Plantain-trees—Gambir plantations—Boiling houses—Cultivation and preparation of Gambir—Dense vegetation of the Jungles—Establishment of a Chinese-planter.

THE Botanic Garden will soon cease to exist. Of the valuable trees it contained a few remain, liable frequently to injury from the inroads and depredations of cattle; and I understand that its locality is to be disposed of in lots for building. A large number of thriving nutmeg and clove-trees laden with fruit, still remain; and a few common tea-trees are seen flourishing, occasionally covered by blossoms, and fruit; several *Bauhinias*, among which the *B. tomentosa*

was conspicuous with its ornamental, delicate, white blossoms and leguminous pods, as well as the *Gardenia*, whose fragrant flowers diffused a powerful scent around some time before the shrub could be discerned; small plants of the *Champaca* (*Michelia suaveolens*) were also seen, but had not yet attained a sufficient elevation to gratify by the agreeable appearance and odour of its blossoms, which are so much the delight of the Javanese women, and other native females, who perfume and ornament themselves with its flowers.

Among others which excite interest to those of the medical profession was the *Croton tiglium*, at that time both in fruit and flower; from the seeds of this shrub the well-known and powerful purgative Croton-oil is obtained; the true camphor-tree (*Dryobalanops Camphora* of Colebrooke) from Sumatra, which yields the medicinal camphor* was also in the garden; this valuable tree was in a very healthy and thriving condition, and was nearly ten feet high; the *Malaleuca Kayu-puteh*, from which the highly-valued cajeput, or, correctly speaking, Kayu-puteh oil is obtained by distillation from the leaves, attracted my attention, and confirmed my previously formed

* The other Camphor-trees are principally of the genus *Laurus*.

opinion, that a much larger quantity of this oil might be obtained from the foliage of the Australian *Eucalypti-trees*; more especially those which have opposite, rounded, and whitish leaves; the oil produced by them being in considerable quantity. On taking and rubbing the leaves of this, *Malaleuca* it would be very difficult to distinguish it in odour from those of the *Eucalypti*, occasioned by the oil contained in them; this valuable oil may therefore, at but little expense, be distilled in any quantity in the colony of New South Wales; the *genuine* oil cannot be purchased at Singapore at a cheaper rate than from two and a half to three dollars for a bottle, which contains about a pint of the oil; but there is a large quantity of an adulterated article very generally sold by the natives at this settlement. The tree, which I felt some interest in examining, was about twelve feet high, branchy, and was at this time both in flower and fruit; the bark was smooth and velvety, and appeared to be deciduous, similar in character to that which I have remarked in the *Malaleuca* or tea-tree of New South Wales.*

Across the creek, at the upper part of the settlement and near the splendid and extensive pile of buildings, the residence of E. Boustead,

* See my observations on the Kaye-puteh-oil, vol. i. p. 166.

Esq. is a wooden bridge, at present in a very dilapidated state, and impassable for carriages, which is a source of great inconvenience to ladies and others who visit across the water. It is reported that a new bridge is in contemplation, to be erected a short distance above the site of the old one; and it would be desirable, for the convenience of the residents, that it should be commenced and finished as speedily as possible.*

In company with Mr. Moor and Dr. Martin, I made an excursion into the interior of the island, for the purpose of viewing the plantations of Gambir, Pepper, &c. as well as for the purpose of investigating its natural productions. Most of the residents, deeply engaged in mercantile pursuits, find but little leisure or inclination to explore the island, or ascertain its real capa-

* Ladies visiting their friends on the opposite side of the creek are obliged to stop the carriage on one side of the bridge and walk across, at the risk of deranging their curls by the breezes, or injuring the fairness of their complexions by the fervent rays of a tropical sun. And besides, they must have a conveyance in waiting on the opposite side to take them to the place they may be desirous of visiting. When so much—in splendid mansions and other improvements to the settlement—has been done by private merchants, it is to be regretted that a new bridge for the convenience of the settlement has been so long deferred by the government.

bilities, or the picturesque scenery and fertile soil it contains, their rambles being merely confined to evening drives, or walks, in the immediate vicinity of the settlement.

We went a short distance up the Singapore river in a sampan; the banks abounded in the dark green and rank mangrove trees, behind which hills arose, and occasional native dwellings. We did not proceed far before we landed among some Malay houses, surrounded with numerous palm, fruit, and flower trees; among which the lofty Jack tree, with its enormous fruit pending from the trunk or larger branches, the feathered cocoa palm, the erect Areka palm, a beautiful shrub of *Hibiscus rosa-chinensis* covered by a profusion of large flowers of a delicate nankin colour, and several large trees of the *Bixa orellana*, or arnotto of commerce, the Cashumpa of the Malays, (some of whom occasionally used it as a dye,) were numerous. One of these dwellings was a manufactory for the refining of sago, and another a native foundry for small cannon; the powerful fragrance of the tube rose (*Polianthes tuberosa*) was diffused around at the very early hour of the morning we arrived, when the sparkling dew-drops had not yet forsaken the herbage, the sun not having yet the power to cause their glistening and refreshing decorations to vanish.

From this picturesque little spot we proceeded through a jungle of lofty grasses and shrubs, with elevated trees rising from the dense mass ; a sedge grass bearing a beautiful silvery inflorescence, the *Flemingea*, *Melastoma*, different species of *Nauclea*, and numerous ferns were seen ; of the latter, among other elegant species, was the widely-spread *Gleichenia Hermannii*, attaining the elevation amid the wilderness of six and eight feet, and *Blechnum*, *Polypodium*, *Lycopodium*, were mingled with others, adding to the denseness of the vegetation. As the sun rose and diffused its rays around, a great number of butterflies, beetles, and other insects passed away in enjoyment their short fleeting lives, and revelled upon the sweets the flowers contained. A lofty species of *Pandanus*, named by the Malays Ninpuan, was very abundant in moist situations ; it rose with its long foliage bending at the extremities, and as the tree increased in elevation it bore a closer resemblance to the growth of the palm tree, and attained the height of forty and fifty feet. The leaves of this tree bleaching about the Malay houses, I found were used by them for a variety of purposes, as coverings for their dwellings, and the manufacture of coarse mats.

We often emerged from the pathways leading through a wild country, upon neat cottages, surrounded by plantations, inhabited and cultivated by that industrious class of people, the Chinese. A primary object of cultivation, I observed, was the Gambir-shrub,* and the pepper-vine: the former was cultivated and exported to a much greater extent, until the Dutch government, by heavy duties, prohibited its introduction into Java, in order to encourage the cultivation and exportation of it from their own settlement at Rhio. Vegetables of different kinds, the sugar-cane, &c. are also cultivated for the supply of the Singapore market.

The situations selected by the Chinese in this undulating country, for their farms and plantations were upon, or close to the sloping hills; and these places are selected for the Gambir and pepper plantations, the lower land proving too swampy. The pepper harvest had commenced, and the vines had the appearance of being very productive this season, being covered with a profusion of clusters of the pepper-berries,

* The Gambir extract has been sent to England to be tried as a mordant for dying, or to be used in the tanning of leather, the extract having been found to contain a very large proportion of tannin. I know not what may have been the result of the experiment. ●

large, and of fine quality.* Some had even attained maturity, having changed from a dark-green to a vivid red. From the latter, the berry being in a ripe state, the white pepper is made; some of very excellent quality was shown us by a Chinese planter who had prepared it.

Instead of the usual and tedious process of drying the pepper in the sun after it has been gathered, I observed the planters, after collecting a large quantity together, steam it; by which, the drying process is expedited, without, it is said, the pepper losing any of its flavour by the operation. At the various plantations I visited, this process was found most generally adopted, although a small quantity was in a few instances laid out upon mats in the sun to dry. The steaming process is almost invariably adopted when the immediate demand for the article is very great, as it was at this time, pepper being in considerable demand at Singapore, for the English market. It was stated to me,

* There are some, but very few pepper plantations upon the island, without a Gambir boiling-house being near them; but although those without the benefit of having the boiled Gambir-leaves strewed over the soil, look well, still the planters say, that the pepper produced by the vines, is neither prolific, nor of so fine a quality.

that three thousand pepper-vines will produce fifty peculs of pepper annually.

The pepper vines are planted in rows, a short distance apart one from the other, and were, in this instance, trailed up split pieces of dead wood, which served as a prop to the vines ; some were tied to their support ; but generally they naturally attached themselves, by giving out fasciculi of roots from the joints, at certain distances.

Plantain trees were occasionally seen in the pepper plantations, probably for the certain degree of shade and moisture they may have afforded. It is said, that a pepper plantation will not thrive unless it be near one of the Gambir shrubs, or rather upon an estate where the Gambir extract is prepared. This was considered to result from the refuse leaves of the Gambir, after boiling, being requisite as manure for the vines. From my own observation, I ascertained this not to be the precise reason of the pepper-vines thriving better where Gambir-boiling houses and plantations existed, but from the Gambir leaves, after they had undergone the boiling process in the manufacture of the extract from them, being strewn thickly over the surface of the ground between the vines, for the purpose of preserving it in a cool and

moist state. This was the principal reason of its being used, and, of course, the soil was finally improved by it, as well as it would be by any other dead vegetable matter. I did not observe in even a solitary instance that it was used about the roots of the vines, but, on the contrary, it was kept cleared from them, the roots of the vines having the earth hecd up about them, leaving a circular space around, and ashes were occasionally mingled with the earth about them, as a manure.

The Gambir plantations were very numerous, as well as those of pepper; and it surprises me, that from the great and general demand for the latter production, both in the China and European markets, it is not an article of more general cultivation. Some persons have asserted that the soil of Singapore is not calculated for the production of pepper; but if in the numerous plantations I have seen, large clusters of fine berries, excellent both in appearance and flavour, is a sufficient denial of the assertion, I can readily make it, and hope its cultivation will be encouraged. Two or three thousand peculs of pepper are collected annually at Singapore.

I had fortunately an opportunity of observing at several of the Gambir boiling-houses, the pro-

cess of manufacturing that extract, from the collecting of the prunings, the stripping of the leaves, to the completion. The shrubs were from five to seven feet high, with rather drooping branches ; the time of collecting, is when the shrubs require pruning, which is usually every six months ; and the trees would be injured, if not destroyed in value, were they not regularly pruned. It is stated, that one shrub will exist and produce the extract for twenty-five or thirty years, if properly and regularly attended to : every care is taken to keep the plantations free from weeds.

I have observed, that the time of collecting the leaves for the manufacture of the extract, was at the time the shrubs required pruning. This, on passing through a plantation, I had an opportunity of witnessing. The too luxuriant branches were cut off with a pruning knife, collected into baskets, and then conveyed to the boiling-house, which is erected in the midst of Gambir plantations, the whole of which, at the period of my visiting them, were in full operation ; the leaves are then stripped from the pruned branches in the boiling-house, and afterwards placed into the Qualie or cauldron ; (which is made of bark, with an iron bottom ;) under this is an enor-

mous fire, which consumes a very large quantity of wood ; the leaves were frequently stirred, and such additions of them made, as were required by their diminution during the boiling process, until the cauldron being entirely full they are suffered to boil for some length of time together. After thus remaining for several hours, the leaves are removed from the cauldron, and placed upon a large bark shoot near it ; and the drainings from them return into the vessel.

The leaves are usually boiled twice, and, after being well washed upon the shoot, the washings are thrown into the cauldron, so that none of the extract may be lost. The leaves are then consigned to their final destination, that of being strewn over the soil of the pepper plantations. The liquor remaining in the cauldron, as well as the drainings, is reboiled, and inspissated until it arrives at the consistence of a very thick extract : it is then placed into oblong moulds. At this time, it resembles very much a very light yellowish-brown clay. After remaining some time in the mould, it is taken out, divided with a knife into pieces, subdivided into small squares, and placed upon a raised platform in the sun to dry. It becomes, when hard and dry, of a very dark-brown colour,

displaying in the interior, on being fractured, a light-yellowish brown.*

From my own observation, as well as from the assertions of all the Chinese manufacturers of this extract, whose boiling-houses were visited, no sago was used in the preparation, although it has been asserted by many writers, that the sago is required to give consistence to the extract ; but a good extract ought certainly to have sufficient density in itself without the addition of any other substance.†

The flavour of the extract is very pleasant, having at first the agreeable sweetish taste of the liquorice-root, and afterwards a not unpleasant astringent bitter flavour. The largest quantity of this extract is consumed in Java ; being used by the Javanese in coarse dyes, as well as a masticatory. The Dutch government encourage, to a

* As, on a former occasion, I had some doubt whether the shrub was monoecious or dioecious, I took another opportunity of making my examinations ; the result of which was, that although a great many of the shrubs had male and female flowers on separate trees, yet a few had both male and female on the same tree.

† One Chinese proprietor of a Gambir manufactory said, he could make half a pecul of the extract daily. The baskets for packing the Gambir when ready for sale, are made from a common kind of rattan, found in the jungle.

great extent, the cultivation of Gambir, at their settlement of Rhio, on the Island of Bintang, as they derive a large revenue from its importation and extensive consumption in Java : a prohibitory duty being also placed upon all Gambir produced in foreign settlements, has still further caused the increase, and still increasing, preparation of it at Rhio. I am indebted to the kindness of a mercantile gentleman at Singapore, who visited and resided for some time at Rhio, for the following observations upon the cultivation and preparation of the Gambir at that settlement, together with the quantity annually exported.

The island of Bintang contains about six thousand Gambir plantations, the larger ones consisting each of from eighty to a hundred thousand trees ; the smaller plantations, or, as named by the Malays, gardens, contain from three to four thousand. The shrubs are in full bearing, and covered with foliage, ten months in the year ; but during December and January, the leaves change to a yellow colour, and consequently are then in an unfit state for producing the extract. Of course, at some parts of the year, the Gambir manufacturers have nothing to do, the shrubs not being in a fit state for pruning ; but if the demand for the extract is very great, the rack-

renters will, even at the risk of destroying the plantation, cut off the branches, and convert both them and the leaves into extract. There are at present upwards of eight hundred plantations in Rhio, completely ruined by this system, which took place in the month of April last, at which time Gambir extract was in very great demand. One boiling-house, or manufactory, is usually attached to about every forty Gambir plantations. It may be observed, that during the rainy season the extract produced is of an inferior quality to that which is made during hot, dry weather, although the foliage being in greater proportion, more extract is yielded by them.

During the wet season, vegetation is very rapid in its progress on the shrubs : if stripped entirely of their foliage, it is not an uncommon circumstance, in the space of five days, to see them renewed, and covered with verdure. The production of Gambir, during the year 1829, amounted to thirty-one thousand peculs; in 1830, it amounted to thirty-five thousand peculs; in 1831, to forty-seven thousand peculs; in 1832, to sixty-three thousand peculs; and for the present year, 1833, will amount to full seventy thousand peculs; and each pecul, of one hundred and thirty-three pounds, pays to the Dutch government the sum of eight rupees, which, at seventy thousand pe-

culs, brings to them the large annual revenue of five hundred and sixty thousand rupees.

It is surprising that no place has yet been found in the Eastern Archipelago from whence Gambir can be procured that can at all compete in quality with that produced at Rhio. The island of Lingin produces a quality next to that of Rhio ; and it is worthy of remark, that Rhio owes its good name to Lingin, as the Gambir, the produce of that island, was not held in any estimation, until Rhio planters (Chinese) went to Lingin to acquire the art of manufacturing it ; and they also brought with them the Gambir plants from that place to Rhio, where it was found to thrive and produce a better extract than at Lingin. A Gambir plantation, after it has attained three years' growth, may be considered capable of yielding good extract, and will continue to do so, if properly attended to, for the space of nine or ten years.

The Chinese, possessing plantations of Gambir at Singapore, informed me, that twenty thousand peculs were manufactured annually upon the island ; and some quantity of it was taken away by the Borneo and other native vessels. There are one hundred and fifty Gambir plantations upon the island, not including a number of plantations of young trees not yet producing the extract : there are also about one hundred and

seventy plantations of the pepper-vine upon the island.

At Rhio, as well as in Gambir manufactories generally, the whole of the leaves, (and sometimes even the stalks,) without any regard to their selection, are used. It appears, also, that when the qualie, or cauldron, is new, the extract prepared in it becomes very dark, and is sold only as a second quality at Rhio, and is almost unsaleable in the Java market : after the cauldron, however, has been in use for one or two years, the extract manufactured in it becomes of a much lighter colour. As the cauldrons are made principally of bark, it must be some colouring matter in it that is bestowed upon the extract ; from this circumstance the old cauldrons are held more in estimation than the new. It appears that the white kind made at Rhio, by the women in their own houses, is not a regular article of commerce ; but is preferred by a few for its refined appearance : it is prepared and brought into a white state, by the extract being re-dissolved, and passed through several washings, until the sediment has become of a white colour, when it is taken out, formed into cakes, and dried in the sun. It is rarely used in comparison with the other kinds of the Gambir extract.

As we left the plantations, and entered the

jungles, a dense vegetation surrounded us on every side, except the small pathway which led through it : the pathway, overshadowed by trees and entwining plants, made our walk during the heat of noon-day, in these situations, delightfully cool and refreshing. The *Sukun utan*, or wild bread-fruit trees, were very numerous in the jungle ; the forest trees, towering to a great elevation, without a branch except at the summit, gave them much the character of those of Australia, but unlike them, in not having their foliage dull and arid. Many birds were shot, of the fly-catcher tribe, of handsome plumage ; a beautiful small black falcon, not more than four or five inches in length, and some other small birds ; but the feathered tribe were far from numerous : the swallow (not differing from our European species) was abundant about the settlement of Singapore ; but I did not observe any in the interior of the island.

About eight A. M. we arrived at the extensive Gambir and pepper plantations, garden, orangery, and neat habitation of a Chinese, who informed us that he had been ten years upon the island. We breakfasted at this place, a servant having been previously sent on with provisions ; but we always found the Chinese planters eager to provide us with any provisions they had. He supplied

our table, however, with some excellent oranges from his garden : he has upwards of two hundred orange trees, (which had been originally brought from China,) of large size and in full bearing, which brought him in a good annual income; from the sale of the fruit in the Singapore market. He said he had expended fifteen thousand dollars upon the cultivation and improvement of his farm.

Many Chinese are settled in the interior of this island, upon land for which no quit-rent having been paid, they render themselves liable to lose the ground they have cleared and cultivated, unless they pay the heavy sum demanded by the government as quit-rent. However, I am not aware of any such oppressive measures having yet been resorted to by the government, and hope the tax on the industry and general cultivation of the land will be removed altogether ; and by bestowing small grants upon the settlers, render the island a garden instead of a jungle—productive, instead of barren.

Although I devoted much attention to the subject of quit-rents, and collected much information on the question, I do not consider that I can do better than insert the following intelligent remarks, which have been published in the Singapore Chronicles of January 24th,

and February 7th, 1833. The subject is one immediately connected with the welfare of the island ; and should the tax be rescinded, which would encourage both emigration and cultivation, we may expect to see the dense forest give place to houses and plantations, smiling with the animation such scenery would occasion, encouraging industry, and adding to the wealth of the settlement.

“ We have already noticed, on one or two previous occasions, the great prohibitions which exist to the cultivation and consequent improvement of this island, in the excessive quit-rents which are required by government on all grants of land, whether within the limits of the town, or beyond it. The terms of this impost we have already noticed, but we think the subject will not suffer by our mentioning them again.

“ Persons desirous of clearing and cultivating waste and forest land, must make application to the superintendent of lands, stating the district and place where the land is situated ; also the description of land, whether hill or level land, and also its extent. After due survey, the superintendent will report the application to the chief civil authority, who, if no objection exists, will grant a permit to clear the land, which must be

effected within such time as may be determined. The land being cleared, the holder of the permit shall be entitled to a lease, subject to the following limitation and provisions :—that the rate of rent shall not exceed one dollar per acre, on the first lease given, fifteen years being the duration ;—that the lease so granted shall be, at its expiration exchanged, for a second lease for a future term of fifteen years, at such rate as shall be determined on, not exceeding three dollars per acre ;—that on the expiration of the second lease, a third, for fifteen years, shall be granted, at a rate not exceeding six dollars per acre ;—that on the expiration of the third lease, a fourth shall be granted, at a rate not exceeding ten dollars per acre.

“ It shall be optional with the government, in the event of the leaseholder refusing to accept a lease at, or under the rates above specified, to eject the holder and resume the land with all buildings thereon. The rate of ten dollars per acre, being declared to be the maximum of rent demandable for lands occupied for cultivation, and beyond the limits of the town of Singapore, or any other town that may be hereafter established, it shall be optional with leaseholders to demand a permanent lease of nine hundred and

ninety-nine years at the rate of ten dollars per acre, per annum.

“The foregoing rules, however, are applicable only to lands beyond the limits of the town; and occupied for agricultural purposes; those respecting ground occupied within the limits of the town, for the erection of buildings, being different. For such ground, the rate of quit-rent has been fixed, on regular leases for nine hundred and ninety-nine years, at one dollar for nine hundred and sixty-six feet, or in the proportion of forty five dollars per acre.

“Such are the terms on which land is held at this settlement, and which we declare to be prohibitions to an extended cultivation and the general improvement of the island. In the first place, with regard to land beyond the limits of the town, the rent, even on the first lease, cannot be considered moderate, at a dollar an acre, as the leaseholder must necessarily incur considerable expense, at the commencement, in clearing the land, which, for the most part, is overgrown with jungle and forest. To repay himself for this expenditure, and to render the speculation worthy of his time and attention, the ground must be made to yield productions calculated to realize some profit. Those most likely to do so, on this island, (from its hilly nature,)

are spices, and certain descriptions of fruit. But many years must elapse before the trees will bear, during which the leaseholder is involved in a necessary and unavoidable expense, which his undertaking may finally be unable to repay.

“The case may not be so applicable to lands suitable for the cultivation of grain or vegetables, which are speedily raised, and require but small outlay, yet even these could not, from their cheapness, realize a profit whenever the land should become chargeable with a rent of ten dollars an acre.

“The periodical leases, renewable after fifteen years, seem to be considered by most as of little value ; they afford no security for fixed property in the soil, as a grant on one of these leases is liable to be resumed by government, ‘with all buildings thereon,’ should the lease-holder or his heirs not choose to comply with the terms of the new lease. A permanent lease, on the contrary, establishes the property in the leaseholder’s family, and he is induced, through a certainty of security for the future, to invest and risk more means in endeavouring to render his land productive, than he could prudently do, when the lease is only periodical. But the excessive rate of the present rent acts as a formidable prohibition to many, who would, were the rent reduced,

be well disposed to invest property in agricultural speculations on this island.

“The injurious effects of the present system are but too apparent in the neglected and uncultivated condition of that very great portion of the island which is beyond the immediate influence of the town and suburbs, and where deep solitude and wild nature reign paramount. The island of Singapore measures about fifty miles in circumference, we believe ; and yet a very small portion of it is under cultivation, owing, in a great degree, to the high rents required for grants of land. The great depreciation of the value of landed property is another palpably injurious effect arising from the present system. We could point out instances where landed property has been sacrificed, at a great loss to the owners, merely for the sake of getting rid of the heavy burden of the quit-rent with which the land is chargeable. One case to the point will exhibit the matter in a still stronger light. We know of a lot of twenty acres, mostly hill, well situated, contiguous to the town, and under cultivation ; there is likewise a substantial dwelling-house, in a commanding situation, which, from its original cost, could not be rented under forty dollars a month, at least : this sum, in twelve months, amounts to four hundred and

eighty dollars ; but the quit-rent, if a permanent lease be taken out, would be two hundred dollars a year, which leaves two hundred and eighty dollars only to pay the interest of the money originally spent on the property, exclusive of other charges. This property is, however, to be disposed of, at a sum amounting to about one-half of what the owner expended in building on it ; yet, with such a reduction, and although the ground is so eligibly situated, no purchasers can be found, solely because the prospect of paying two hundred dollars a year quit-rent, deters those who are willing to purchase, while it makes the owner anxious to part with the property at a great sacrifice.

“ We believe the local government is fully sensible of the impolicy and ruinous consequences of the present rate of rents ; and we understand that the present governor, Mr. Ibbetson, even recommended a reduction, substituting sicca rupees for dollars ; but that the Court of Directors would not hear of such a thing, and insisted on a strict observance of all Mr. Fullerton’s regulations, and an adoption of his principles. We need scarcely add, the land-regulations, now under review, were framed by the latter gentleman.

“ It seems to us, that this refusal to accede to

a most reasonable and wise measure, was dictated more by infatuation than by any other visible cause. Probably the directors imagine this island contains an *El Dorado*, somewhere in its unknown parts, from which they or their successors in governing will derive, at some future time, incalculable wealth, arising from hidden mines of gold or tin. We wish them success in this prospect; but we can assure them, notwithstanding, they will find hereafter that the best and most valuable treasure is to be obtained by allowing the island to be freely cultivated, under a liberal system of encouragement to those who are inclined to commence agricultural pursuits. If such were adopted, population would soon increase *in reality*, and with it, private wealth and public revenue; the latter derived, both from an extended cultivation of land, held under very moderate rents, and from an extension of the revenue-farms, which must naturally rise in value with an increase of population.

“The daily and common articles of food, for which we are at present indebted to the neighbouring states and islands, by becoming naturalized, would be much cheaper than at present. To the shipping this would prove a very great advantage, as, at some seasons, the charge for

supplying ships is enormous; at all times, indeed, it is much higher than at most other ports in India. The plantations of cloves, nutmegs, pepper, coffee, sugar, and rice, which could then be raised throughout the island with advantage, would moreover render it a far greater acquisition to the British government than it is at present.

“ We have hitherto treated this important subject on grounds of justice to the settlement itself, and advantage to the government. We shall now argue by analogy. Our neighbours at Rhio, profiting by the unwise and illiberal system adopted here with regard to lands, have rendered the island of *Bintang* (which we believe is double the size of Singapore) a very valuable and fertile possession. We have been given to understand that no less than sixty thousand peculs of pepper are annually raised on that island; nearly the whole of which is under cultivation by Chinese. Besides these productions, raw dammer, wood oil, bark, and timber, are obtained. The gambir is mostly exported to Java, and the pepper to this port. From these articles the Rhio government derive a moderate revenue by means of farms.

“ Here is an example set by a neighbouring settlement, generally considered inferior to this,

which is well worthy of imitation ; and if our worthy rulers would only forego their anti-colonization, and anti-improvement notions, even before the present rapid strides of a reforming age compel them to do so, they would do well to cause this island to rival, or rather excel, *Bintang* in its productions.”*

* Since the above was in the hands of the printer, I understand that the Calcutta government have taken into consideration the subject of quit-rents, and that more judicious regulations have been instituted ; so it may be hoped that the rising prosperity of the settlement will no longer be impeded.

CHAPTER X.

Excursion further inland — Dense forest — An extensive swamp—Parasitical plants—Fungi—The pitcher plant—Return to Singapore—The wild Pine-apple—Use of that plant—Manufactory of Pearl Sago—Visit to the Rajah of Johore—Interview with his Highness—Excursion to St. John's Island—Pulo Panjang—Impenetrable jungle—New Harbour—Agar-agar.

AFTER breakfast we continued our excursion much further inland, passing through several extensive cleared spots, embellished by Gambir and Pepper plantations; the residence of the proprietor, or a Gambir boiling-house, appeared amidst a thicket of plantain, jack, and other trees. The grounds near the residences of the planters were decorated by the crimson flowers of the *Hibiscus rosa chinensis*,* the simple but

* The Malays at Singapore, in the employ of Europeans, often use the flowers of this shrub for cleansing shoes, by rubbing them with the petals of the flowers, which contain a quantity of purplish black astringent juice. After rubbing

delicate *Vinca rosea*, or the perfumed jasmine distributed its agreeable fragrance through the ambient air, all of which seemed favourites with the expatriated Chinese. Around these cleared spots, a dense forest appeared mingled with a profusion of rich vegetation, and a small, narrow pathway would occasionally permit us to penetrate into its recesses. Trees and shrubs, of infinite variety, gave a rich and beautiful appearance to the wilderness, and enabled me to enrich my botanical collection with numerous valuable specimens.

Occasionally, the noisy and mischievous monkeys would be seen gambolling and springing from tree to tree, keeping up a continual chattering on our approach ; a gun fired at them produced great consternation among this ludicrous, but active race ; they bounded away (although none had received injury) with great rapidity, screaming dreadfully, and overwhelmed with horror and dismay, as if they had instinctive knowledge of our destructive powers. One unfortunate monkey, the nearest to us, and the

them over the shoes, they polish the latter by aid of a brush ; it certainly prevents the white dresses, usually worn in eastern climates, from being sullied by the shoes, which often happens when blacking has been used ; this is probably the cause of its being called the *shoe-flower* by Europeans.

one at whom the gun had been levelled, was so frightened, (and certainly with good cause,) although he had not received any injury, that in springing away to a tree, at some distance, he nearly missed it, and hung for a few minutes by one arm, in an exposed and insecure situation, upon a small twig, screaming most dreadfully. The branches crashed as the monkey rapidly made his retreat, as his companions had just done before ; and his screams were heard for some time after he had buried himself in the thick forest.

Upon many of the trees beautiful ferns of the genera *Achrosticum*, *Pteris*, *Polypodium*, *Scolopendrium*, &c., abounded, mingled with various curious and elegant parasitical plants ; and upon the prostrate trunks of the dead trees, which often lay across the forest, levelled by the tempest or axe, differing varieties of fungi, glowing in red, golden, or other colours, were mingled with lichens.

On our arrival at an extensive swamp, in which, however, the denseness and beauty of the forest scenery had not in the slightest degree diminished, the lofty trees and profuse tropical vegetation, afforded, by their umbrageous coverings, a cool and agreeable shelter from the fervour of a noon-day tropical sun, and rendered the excursion particularly pleasant. The only pas-

sage over these swamps (which were occasioned by numerous springs of very excellent fresh water) was by the trunks of trees laid prostrate on a cleared but very narrow space, which would, perhaps, be called a pathway, and extended for the distance of probably a mile. Walking over these slippery, and often unsteady bridges, rendered us often liable to some immersion of our lower extremities.

About these swamps, partially immersed in the crystal water, and partially entwining to some height the slender trees in the vicinity, a species of *Nepenthes*, or Pitcher plant, the Moniet, manko, or Monkey-cup, of the Malays, (because they suppose those creatures to use them as drinking cups,) abounded; a large cluster of small and colourless cups surrounded the roots, as well as at certain parts of the stem. The plant rose far above the stream, and entwined itself around the trees in its vicinity, even to the height of twelve feet. The termination of the leaves had the cup-like appendages of various sizes, filled with water, in which several insects were immersed, the cups were ornamented over their surface with striæ, and dots of a dark red colour; sometimes those around the stems would be colourless, but varied occasionally, by being greenish and small, and also covered like

those at the extremity of the leaf, with dark-red spots. I collected numerous specimens of this curious and interesting plant.

The country had generally an undulating character, and our peregrinations extended into dense forests, in which, among the larger productions of the vegetable kingdom, small, delicate ferns were often abundantly seen, enjoying the luxury of shade and moisture. Upon extensive cleared tracts, covered by Gambir, Pepper, and other plantations, the neat habitations of the planters, surrounded by fruit-trees and flowering shrubs, formed a pleasing variety, from the grand and magnificent wildness of nature, to the more cultivated improvements of art—beautiful in contrast.

Although the weather had been remarkably fine during the first part of the day, we experienced a heavy shower of rain, which the Malays accounted for by my having gathered and carried in my hand a large quantity of the *Nepenthes*, or Pitcher plants, which, they said had occasioned the rain to fall.*

* Rumphius says that the natives of Amboyna were unwilling to bring him specimens of the plants from the mountains, from the full persuasion, that if the appendages were gathered and emptied of water, heavy rain would overtake them before their return. In conformity with the same be-

There are said to be about two thousand Chinese inhabiting and cultivating the soil in the interior of the island. They have neatly-constructed, although not well-furnished habitations. They offered us tea, (and it was poured out in the usual Lilliputian cups,) fruits, rice cakes, and more substantial articles of diet; indeed they always appeared ready to give us the best they had. After taking a rustic dinner, we returned to the sampan by the same route we came. On the road we observed a Malay lad collecting some plants, as he informed us, for medicine: those I examined consisted merely of several grasses. He said it was for a patient suffering under small-pox. The plants were to be boiled, mixed with rice, and employed as an external application to the body.

We rejoined our sampan at the Singapore creek, and arrived at the town early in the evening.

Early one morning I visited a plantation of a

lief, when suffering from a long drought, they pour the water from all the appendages they can find, satisfied that the ceremony will be followed by a change of weather. Such belief is curiously contrasted with their notions of the medicinal properties of the water contained in them, which they believe an infallible specific for incontinence of urine.—*Rumph. cit. in Abel's China*, pp. 340, 341.

Chinese, (in company with Mr. Lorrain and the Rev. Mr. Darrah,) situated in the vicinity of the settlement, for the purpose of witnessing the preparation of the fibres from the leaves of the Ananas, or wild pine apple, which fibres, after being prepared by a very simple process, are exported to China, and used in the manufacture of linens, &c. The Chinese, who prepared the leaves before us, said, he got one rupee and a half the catty for the fibre ; it was in texture, when manufactured, very similar to the New Zealand flax, of a fine quality, and there is also some similarity in the manner in which it is wrought. The leaves recently gathered (and the longest and oldest are those which appear to be selected for the purpose) are laid upon a board, and the epidermis is removed by a broad knife, not unlike in form to a shoemaker's paring knife ; upon its removal from the upper surface of the leaf, the long and beautiful fibres were seen lying upon the lower and denser epidermis, running in a longitudinal direction ; the fasciculi of fibres were then readily detached either by the hand or by being raised with the broad knife.

Some quantity of this material is annually exported to China, and at Manilla a very delicate and beautiful fabric is made from the fibres

of this plant. The aloes likewise yield a fine fibre applicable for various manufactures.* I am surprised that the New Zealand flax, the fibres from the foliage of the pine-apple plant, and others, are not used in our manufacturing kingdom, where, there is no doubt, they would form a valuable addition to our raw materials for use in various novel manufactures, either by themselves or in conjunction with other materials. The first appearance of the pine-apple fibre would not cause one to suppose it to be so remarkably fine as it really is ; but, by taking one coarse fibre, it is found to be capable of being subdivided into threads of such delicacy as to be barely perceptible, and yet sufficiently strong for any purposes.† This plantation abounded in

* " At Amboyna," says Labillardiere, " the natives contrive to procure threads from the bastard aloe, called *Agave vivipara* : the master of the house went and cut a branch of this plant, and resting it on its thigh in order to scrape it with his large knife, and take off its pulp, he obtained from it a fascicle of threads as long as the leaf, and as strong as those of our best hemp."

† From the expense attending labour, as well as its scarcity in this settlement, the pine-apple fibre could not be prepared at present under thirty-eight or forty dollars the pecul ; but in Pinang, or other places, where labour is cheap, and, as in the preparation of this article, women and children may be employed, the expense attending it would hardly exceed ten dollars per pecul.

pepper plantations, as well as a great number of various kinds of fruit trees.

Singapore is the principal, if not the only place in the East, where the refining or manufacturing of the pearl sago is carried on; the process is said to be a recent one, and the invention of the Chinese. According to Crawford, it was first practised in Malacca about twenty years ago, and was only introduced into Singapore in 1824. I availed myself of the establishment of many of the manufactories of this article, in and about the settlement, to visit one,* in which I found a number of Chinese, all of whom were busily occupied in different stages of the operation. The sago, or sagu, is imported in large quantities into Singapore from Sumatra in native boats, who bring it at all seasons of the year; and a few days since eighteen proas of different sizes arrived in the creek, laden with this article alone in its raw state. The tree from which the raw material is produced is named *Rumbiya* by the Malays, and has been too often described to render an account necessary here.†

* Situated at Teluk-ayer, (teluk, bay; and ayer, water).

† There is a very coarse granulated sago in large grains, and of a dirty greyish colour, which is imported by the

The raw sago is imported in cone-shaped packages, each probably weighing about twenty pounds; the mass is of rather soft consistence, and of a dirty white colour, occasioned by being mingled with several impurities, and the whole is enveloped in the leaves of the *Pandanus* tree.* It first undergoes several different washings in large wooden tubs, being also strained, after washing, through cloth-strainers. When the raw material has undergone sufficient ablutions, the masses which remain at the bottoms of the vessels are collected, broken into pieces, and placed upon platforms in the sun to dry; being broken into still smaller pieces as the drying proceeds.

As soon as the pieces are sufficiently, although still not always thoroughly, dry, they are pounded and sifted upon long benches, through sieves made of the midrib of the leaves of the cocoa-nut palm,

native boats from Borneo, and is used at this settlement during a scarcity of rice by the poorer class of people.

* In the list of imports published in the Singapore Chronicle, the raw sago is usually designated as sago tamping, (tamping signifying a package, from the raw sago, being always imported wrapt in the leaves of the *Pandanus* tree;) it is imported in this country by fleets of ten boats, or even more, having to the amount of twenty thousand tappings or packages on board; the packages vary in weight, some weighing more and some less to the pecul.

and placed at certain distances in a longitudinal direction, so as to cause the pulverised or rather broken masses of sago to pass through it only of the required size. Having been passed through the sieve, a certain quantity at each time is taken, placed into a large cloth, tied to cross sticks, in the form of a bag, hanging by a cord from the roof of the building; a Chinese is then employed in shaking the bag backwards and forwards, by aid of one of the longest crossed sticks to which it is attached, occasionally shaking up the sago powder; this is continued constantly for about the space of ten minutes, when it is turned out granulated. It is then placed in small wooden hand tubs, looking beautifully and delicately white, but still so soft as to break instantly, with the slightest pressure, under the fingers, and carried to several Chinese, whose occupation is to make it undergo the drying process in large iron pans over a fire. They are constantly stirring it about when in the iron pan with a wooden instrument; it is then resifted at another bench and rebaked, after which it is considered prepared. It is then of a fine pure white colour, and being spread thinly over a long and large bin, in the course of time it becomes both harder and of a darker colour.

At this establishment there appeared to be

about fifteen or sixteen Chinese employed, and they said six or seven peculs could be manufactured in one day. The pearl, or refined sago, is exported in large quantities to Europe, our Indian empire, the Cape, &c. in wooden boxes, each containing rather more than a pecul; ten boxes containing nearly fifteen peculs. It is sold at two and a half to three dollars the pecul, which includes the expense of boxes. A piggery is attached to this sago establishment, the inhabitants of which must fare very well upon the refuse of the sago washings.

One evening, accompanied by several gentlemen resident in the settlement, I went to pay a visit to the rajah of Johore. During a former visit to this settlement, in 1830, I had an interview with this exalted personage, of whom at that time I penned the following description:—
“ Being near the village of Kampong Glam, I observed a poor-looking bungalow, surrounded by high walls, exhibiting effects of age and climate. Over the large gateway which opened into the inclosure surrounding this dwelling were watch-towers. On inquiry, I found this was the residence of the rajah of Johore, who formerly included Singapore in his dominions. The island was purchased of him by the British government, who now allow him an annual pension. He is

considered to have been formerly a leader of pirates ; and when we saw a brig he was building, it naturally occurred to our minds whether he was about to resort to his old practices. We proposed visiting this personage ; and, on arriving at the gateway, were met by a peon, who, after delivering our message to the rajah, requested us to wait a few minutes, until his *Highness* was ready. We did not wait long, for the rajah soon appeared, and took his seat, in lieu of a throne, upon the highest step of those which led to his dwelling. His appearance was remarkable : he appeared a man of about forty years of age—teeth perfect, but quite black, from the custom of chewing the betel constantly. His head was large ; and his shaven cranium afforded an interesting phrenological treat. He was deformed ; not more than five feet in height, of large body, and short, thick, and deformed legs, scarcely able to support the ponderous trunk. His neck was thick and short, and his head habitually stooped ; his face bloated, with the lower lip projecting, and large eyes protruding, one of them having a cataractal appearance. He was dressed in a short pair of cotton drawers, a sarong of cotton cloth came across the shoulders in the form of a scarf, and tarnished, embroidered slippers, and handkerchief

around the head, (having the upper part exposed,) after the Malay fashion, completed the attire of this singular creature.

“ As much grace and dignity was displayed in our reception as such a figure could show, and chairs were placed by the attendants for our accommodation. He waddled a short distance, and, notwithstanding the exertion was so extraordinary as to cause large drops of perspiration to roll down his face, conferred a great honour upon us by personally accompanying us to see a tank he had just formed for fish, and with a flight of steps, for the convenience of bathing. After viewing this, he returned to his former station, when he reseated himself, with a dignity of look and manner surpassing all description ; and we took our departure, after a brief common-place conversation.

“ I remarked, that, on his approach, the natives squatted down, as a mark of respect : a custom similar to which prevails in several of the Polynesian islands.”

The buildings of his highness and followers were now in some degree improved, being surrounded by a neat chunamed wall, and the entrance was by a gateway of brick, which had been only recently completed. Since my last visit his highness had caused a house to be constructed after the style of the European residents

at Singapore, and it was situated exterior to the old boundary of his domain. We were ushered into the new house, the rooms of which were furnished after the English style, with wall-lamps, bookcase, (minus books,) tables, chairs, &c. ; ascending to the upper room, chairs were placed for our accommodation, and the punka was caused to be moved to cool our frames. When we were all seated, a yellow painted armed-chair was placed at the head of the room, as a regal seat for his highness ; his prime minister came to us, and, as we thought, seemed puzzled for what so large a party of Europeans could require an audience.

At last a messenger entered the room, and, squatting down near the minister, whispered something to him, which it seemed was a desire that we should adjourn from this to the old thatched residence of the Tuan rajah. We adjourned, therefore ; and, on arriving at the old residence, the rajah, one of the greatest curiosities of the human race perhaps ever seen, waddled, bending with infirmities, and seated his carcass in the aforesaid yellow chair, which had been brought from the other house, and placed in a suitable situation ; and there, with his corpulent body completely jammed between the arms of the chair, received us in a most gracious and condescending manner, if such a

figure really could look gracious or condescending.

The creature was tame, and both mentally and physically more debilitated than when I last saw him, in 1830 : he appeared not even to possess the intelligence of an orang-utan ; he was attired in a dirty sarong around his waist, and a loose baju, or jacket, exposing the corpulency of his *delicate* form. A Moorman's cap ornamented a small portion of his cranium ; his look was listless, and without any expression : he appeared every moment to be in danger of an attack of apoplexy. The gentlemen who spoke the Malay language, on addressing him, received a grunt, or his language was so unintelligible that his minister was obliged to repeat the answers. All the attendants sat down upon their haunches in his presence, out of respect.

On asking him his age, he replied (or rather his minister for him) by demanding how old we thought he was ; we certainly thought he had not yet attained the age of reason. We were afterwards told his age was not exactly known, but it was supposed the creature was fifty. As but little could be made out of this pitiable object of humanity, we released him from what certainly must have been to him a misery, by taking our leave. On viewing the

edifices in his enclosure, previous to departing, we found the creature amused himself with building. Besides the new residence and wall, he was erecting a residence and wall for himself, neat and extensive in construction, and in something of a Chinese style of architecture. This building was certainly wanting, for the old thatched palace near it seemed ready to fall about his ears.

Society at Singapore is extremely agreeable to a visitor—for only as one can I judge of it. Whether in intercourse among themselves they are divided into the mechanical and aristocratical party, I cannot say, having only heard a whisper to that effect. I have found, during two visits to the little settlement, unbounded hospitality, and every attention to my scientific inquiries, of course some taking more interest in my researches than others.

At daylight one morning I set off, accompanied by the Rev. Mr. Darrah, in a large sailing-boat, belonging to my friend Mr. Boustead, on an excursion to visit St. John's Island, or Pulo Sijang of the Malays, New Harbour, &c.; we had but little wind, but contrived, with a numerous Malay crew, to pull out soon to the first island, and landed on a fine sandy beach. The only inhabitant was an old Malay, whose small thatched habitation was surrounded by cocoa-

nut, orange, guava, plantain, and other tropical fruit-trees ; and the beach was strewn with the plants and bell-shaped purplish flowers of the *Ipomœa soladenella*, or sea-side convolvulus, which grew in very great profusion.

The *Morinda citrifolia* was here abundant, as also among the islands forming the eastern Archipelago, where it is used as props for the pepper-vines, or planted as a shade for the coffee-plants, and is named by the natives Mangkudu.* The roots of this species are only mentioned as being used as a dyeing material in the eastern Archipelago. The *Morinda* is indigenous also to the Philippine Islands, where it is named in the Tagalo Tambungaso. The natives of these islands, when a limb is fractured, use the leaves of this shrub, anointed with oil, to lay over the surface of the fractured limb ; and it is considered by them of benefit in allaying the inflammatory action.

This shrub attains the height of ten or twelve feet. At Tahiti, and most of the Polynesian Islands, where it is also found indigenous, the

* In the language of the western countries of the Archipelago, the tree is named according to the idiom of the pronunciation of the people, Mangkudu, Bangkudu, or Wangkudu ; the three initial consonants in these cases being commutable and very arbitrarily used."—*Crauford's Indian Archipelago*.

inner bark of the root is used for dyeing the native cloth of a fine yellow colour : this is done by infusing the bark in water, into which the cloth intended to be dyed is afterwards placed, and being suffered to remain for some hours, is taken out and dried in the sun. At Tahiti the shrub is called Nono, or Aari ; at the Sandwich Islands it is called Noni. The fruit is eaten at some of the Polynesian Islands in seasons of scarcity.

The island, which is elevated, was profusely covered with various kinds of fruit-trees, growing in wild luxuriance, mingled with several pretty flowering shrubs and plants, but spreading about in almost every direction. The pine-apple plants, at this time in fruit, at different stages of advancement towards maturity, and some decked with their delicate blue flowers, were seen sometimes mixed with rich vegetation, and at others kept cleared.

On the summit of the island, the old signal post, formed from the trunk of a tree, remained, but the signal station had been removed to a more elevated and convenient site upon the hill, called Blackan Mattee. The view from the summit of this elevated island, was both extensive and beautiful ; the small islands near us were either covered by a wilderness of wood, or else the jungle was cleared

away. The pine-apple plants, which grew in natural profusion, formed extensive plantations, and many of the poorer class of Malays obtained a decent livelihood by taking them in sampan loads, when ripe, for sale to Singapore. The distant verdant islands also added to the beauty of the landscape, and small boats, gliding with a gentle zephyr over the glassy surface of the water, or a thatched habitation, nearly buried in a dense tropical vegetation, gave an additional charm to the scene.

Having collected a few fine ripe pines, we resumed our little voyage to Pulo Panjong, or Long Island, on which the elevated mount, called Blackan Mattce is situated; we refreshed ourselves with some pines, but our Malays, I observed, did not eat the pines until they had dipped them previously in salt-water, by which they considered the fruit was rendered more wholesome. I did not relish following their example, nor did I feel any ill-effects, from what many have called my imprudence. The pines we gathered contained a quantity of small brown flat seeds.

We landed on Pulo Panjong, among some neat Malay houses, near a sandy beach. The thatched houses, towering cocoa-palms, plantain trees, with rude plantations of sugar-canes, yams, &c., reminded me of many of the islands forming the Polynesian Archipelago; and the

appearance of the half-naked Malays did not tend in any degree to dissipate the reality of the comparison, but rather tended to confirm it. A kind of millet, called Sukue, (*Pennisetum italicum*, Brown,) was also cultivated in small patches by the Malays, and several magnificent trees of the *Bombax pentandrium*, or silk cotton-tree, rose in towering beauty, mingled with the cocoa-palm above, the dwellings. Only a very small portion of this island was cleared, the remainder forming an almost impenetrable jungle, a refuge only for monkeys and wild hogs. We found it very difficult to penetrate the luxuriant and entangled branches of the pine-apple plant, as we walked from one part of the island to another to join the boat, at a very short distance.

Having rejoined our boat, we passed through the beautifully picturesque strait, commonly named the New Harbour, one side of which is formed by Pulo Panjong, or Long Island. The land about this harbour possesses many sites eminently calculated for beautiful European residences, and plantations, where one could gaze with delight, in peaceful retirement, upon the tranquil scenes of nature, enjoying the refreshing sea breezes, and be, at the same time, only a short distance from the bustle of a commercial town. This place would not be advisable as a resort for shipping, the present roadstead being

by far preferable, as a ship would be delayed entering this harbour or strait, by waiting for a fair wind, and her departure also retarded by a similar cause. We entering on one side, and taking our departure from the other, passed entirely through, having an excellent view of the picturesque scenery of this lovely and pleasing spot. We did not, from the extended length of our excursion, return to Singapore until about noon.

There is a plant very abundant about some parts of Singapore, the *Cassia alata*, which may be seen in profusion by the road-side, often glowing with golden flowers; it is called G'ling gang, or Pako, g'ling, glang, (Pako signifying a tree,) by the Malays, who state that they use it in several diseases of the skin by rubbing the leaves of the plant upon the diseased surface. Mr. Oxley (civil-surgeon at this settlement,) informs me that he has used it with excellent effect in that troublesome herpetic disease called "ring-worm;" and his method of application is by bruising the leaves, mixing them with salt and lime-juice, and then using them as an external application.*

* Sandal-wood oil is also regarded as a never-failing specific for this very troublesome eruptive disease.—I am

A kind of white sea-weed, called *Agar, agar*, is found on the reefs about Singapore, but the best is procured from Malacca, where it is obtained in great abundance about the "Water islands," in the vicinity of that settlement; and after being collected it is picked and washed. It is also brought to Singapore from Billiton, Bouton, &c.; the weed from the former place sells at three dollars and a-half the pecul, and from the latter at three dollars the pecul. This article is exported in large quantities to China, where it is used for various purposes—as stiffening linen, size for paper, &c. At Malacca and Singapore the finer kind makes a beautiful transparent jelly, which is of course perfectly tasteless, unless mixed with rose-water, sugar, and lime-juice, which render it an excellent pre-

inclined to consider that more efficacy is stated to be possessed by the *Cassia alatu* than can be justified by actual experience, with regard to the ring-worm; for I have, since writing the above, been informed that it had often been tried upon cases at Singapore for nearly a month, without any decidedly good effect resulting from its use, although the disease had been evidently mitigated by its application: it might certainly be more efficacious if used simply bruised, without the addition of lime-juice and salt, which latter is the mode of application adopted; but the addition of the latter articles is regarded as tending to increase its efficacy in the disease.

serve, as well as an ornament for the dinner-table. There is some trouble in refining it, as it requires frequent boilings before it attains the requisite transparency.

At Singapore I observed some filaments from a plant, which was described as growing abundantly at Malacca. These filaments display much irritability on the application of warmth, and will twist and turn about for a long period afterwards. They are named *Naga-pusing* by the Malays, which signifies “to turn or twist round.” Each filament is covered with a very minute pubescence. They appear to be the awns probably of a species of *Anthistiria*. They are used by the natives, in form of decoction, as an external remedy in eruptive diseases.

On the 24th of November, (Sunday,) three shocks of an earthquake were experienced at the island of Singapore; the first shock lasted three minutes, and occasioned the lamps to swing, chairs to rock, &c., commencing at twenty minutes after eight, P.M. A slight shock was again experienced at three A.M.; and another very slight shock at five A.M. of the following morning.

An earthquake, it seems, was felt in India, at Ghazeepore, an account of which I copy from

the Bengal Hurkaru, of November 6th, 1833, extracted from the Calcutta Courier :—

“ *Ghazeepore, August 27th, 1833.*—On the evening of the 26th of August, two distinct shocks of an earthquake were sensibly felt here ; the first at eleven o'clock, the second at half-past eleven. The former lasted about a minute, the latter about two minutes, and was so serious that the furniture in the houses began to rock, and the doors to shake, as if done by some strong man attempting to force them. The thermometer had risen a good deal through the day, which was closer and more sultry than usual. The natives say there has been nothing of the kind since 1820. It is worth remarking that, in that year, an epidemic raged among the stud horses, and carried off a great many. This year (June 1833) the dreadful disease again broke out among them, and carried off about fifty noble steeds. The obituary also for Europeans fills a much larger space than usual, particularly as regards the children ; and of cholera cases not a few.”

In another paragraph in the same paper, is another extract. “ A letter from Monghyr reports that, on the 26th ult. a smart shock of an earthquake was felt a little before nine o'clock ; and that in the night of the following day a large

flight of locusts passed over the station : the direction whence they came is not mentioned. We understand that a flight of locusts was seen at Jubalpore about a fortnight before."

CHAPTER XI.

Sail for England—Crowned Pigeons—Straits of Dryan—Banca Straits—Zutphen Islands—Escape and re-capture of a crowned pigeon—Death of one of those birds—Dissection—Pass the Cape of Good Hope—Fine weather—The trumpet weed—Volcanic rocks—St. Helena—Buttermilk Point—James's Town—Ficus Religiosa—Over-population of James's Town—Visit to the late residence of Napoleon.

ON the 15th of December, I sailed from Singapore for England, having on board three of those magnificent birds, the Crowned or Dampier's pigeons, the *Columba coronata* of Linneus, which I took under my care for my friend, T. Rawson, Esq., of Dulwich. The bird is nearly as large as a turkey; the body is of a leaden hue; scapulars ferruginous, with a white band on each wing: the head is adorned with a crest of delicate and beautiful feathers, expanded in a crescentic form, which,

although always erect, the bird has the power of still further elevating and bringing down to the base of the bill : the irides are bright red ; feet and legs speckled with black.

These birds inhabit the Eastern Archipelago, and the present specimens had been brought from the island of Ternate. I saw at Batavia two living specimens, which had been just brought in a vessel from Amboyna ; but they were regarded as a very delicate bird, and difficult to keep alive ; yet I observed, in a newspaper, (April 15th, 1832,) that a pair of these birds had been landed in England from the *Kingsdown* : they had been brought from New Guinea. “ It was the mournful notes of this bird,” as therein stated, “ that greatly alarmed the crew of the *Bougainville*, on landing at some of the Molucca Islands, which they took to be the cries of distress of the human species.” It was further stated, that they had been presented to the *Surrey Zoological Gardens*, by Captain Underwood.

“ At Tomoguy,” says Captain Forrest, “ I bought three of the large crowned pigeons, very well represented by Dampier. The Molucca people call them *Múlutu*, and the Papuas *Manipi*. My pigeons grew tame, and eat Indian corn called *Jaggon*. They strike hard with their wings, on which is a kind of horn. One of the three

escaped at Dory Harbour ; (New Guinea ;) the other two I carried to Mindanao, where they died.”*

We passed through the Straits of Dryan, with a fine breeze from the north-east. On the morning of the 20th, we spoke the Honourable Company's ship, Marquis of Huntley, about the entrance of the Banca Straits, from China, bound to the Cape, and England. We passed the Banca Straits, and Lucepara Shoals, and entered the Java Sea on the 22nd, having experienced much rain during our passage from Singapore.

On the 26th, we passed the beautifully picturesque and umbrageous *Zutphen Islands* ; the adjacent coast of Sumatra had also a rich wooded appearance : the grand and majestic peaked mountain of Rajah Bassa rose from the forest land, towering to the clouds, and clothed in verdure, but was sometimes concealed by the fleecy mists which passed over it, as well as over the lower land, discharging themselves in occasional light and refreshing showers. The moisture of the atmosphere occasioned a delightful fragrance to visit us from the shore. The island of *Thwart-the-way* was passed about eight A. M. ; and in the afternoon we were becalmed off the

* Forrest's New Guinea, p. 74. 4to. 1780.

lofty-peaked *Crokatoa Island*, which was densely wooded from the base to the summit ; and, from the very close view we had, displayed a rich and beautiful appearance.

On the 30th of December, we had the commencement of the south-east trade, being then in lat. $8^{\circ} 49'$ south, and long. $101^{\circ} 20'$ east. On the 31st of December, I nearly lost one of the *Crowned pigeons*, from some of the bamboos of the cage in which they were confined having been broken. This accident was not perceived at the time it occurred : it was even fortunate that the bird was seen to escape, and the cause discovered, previously to the whole of them coming out. The bird, now at liberty, got upon one of the quarter-boats ; and from the motion of the ship throwing it occasionally nearly off its balance, I was fearful every moment of seeing it meet with a watery grave. As it stood upon the edge of the boat, surveying the expansive ocean before it, the bird seemed, as the vessel gave an occasional lurch, to be in danger of falling into the waves ; or by mistaking the *field of sea* for a large plain, might have plunged itself, unconsciously, into destruction : fortunately, however, the second officer of the ship succeeded in capturing and returning it to the cage it had forsaken. As the bird stood upon the boat, it had

a very graceful and elegant appearance, gazing upon the wide view before it, with its beautiful bright-red eyes, and delicate crest; uttering at the same time, whilst gently bending its head, the usual humming, mournful sounds, which resembled those of a person suffering bodily torture.

The birds have a very healthy appearance, and feed well upon paddy; and on some maize being given to them some time afterwards, they refused it, preferring the former grain. After this accident occurring to their cage, to prevent a recurrence, they were removed into an empty and spacious turkey-coop, which, from its construction, shelter them very well from the weather.

On the 15th of January, I had the misfortune to lose one of the birds: they had all the semblance of being in excellent health on the evening previously; but when the decks were washing, one was seen to run about the cage two or three times, and then fell dead. This bird, I had observed when it first came on board, had a film over one of the eyes, (which diseased eye has been preserved in spirits,) but it did not appear at all to affect its general health.*

From the very sudden death of the bird, I felt

* At noon of the day the bird died, we were in lat. 22° 58' south, long. 67° 0' east.

some degree of interest, in examining the body, to ascertain the cause of so sudden a mortality ; fearing that the other birds might be affected in a similar manner, and thus all my hopes of taking them to England in a living state would be frustrated.

On taking the dead bird from the cage, a quantity of gruelly liquid was discharged gradually from the bill : there were no external appearances to account for the death of the creature : the plumage was rubbed in some places ; the wing and tail feathers were broken, but not more than may be expected from birds in a state of confinement, although they had an abundance of space in their coop to roam about.

On examining the interior of the bird, the appearances of disease that presented themselves were sufficiently clear to account for its death : the skin, considering the size of the body, was very thin ; but this I believe to be invariably the case in the pigeon tribe : the bird was very muscular ; but the pectoral more particularly, as well as also the other muscles, were extremely pallid, and could be readily torn asunder, having a closer resemblance to the muscles of a fish than to those of the feathered tribe. On examining the crop, I observed that it was, both in its external as well as its in-

ternal appearance, very vascular : it was nearly empty of food, having only a few grains of paddy mingled with some quantity of mucus ; some scattered grains of paddy were also seen in the mouth and gullet, so it appears the bird had died whilst in the act of feeding. There was much yellowish fat about the crop, as well as other portions of the body.

Between the skull and the integuments, there was much secretion of a scrous fluid ; but I could observe no muscular apparatus for raising or depressing the crest. But underneath the crest, between the skull and the integuments, was much fat ; a thickening, as if of cellular membrane ; and glands secreting the elegant and delicate feathers forming the crest.

The eyes and corresponding orbits were very large ; indeed, I may say remarkably so, considering the size of the skull, the posterior portion of which was very thick, and the brain of a small size, in proportion to what would have been expected from the external appearance of the cranium.

The lungs were soft and readily broken, as well as the liver, although neither of them had an unhealthy colour in their external appearance. Upon the under surface of the latter organ, there was a small and nearly oval body,

in some degree resembling a clotted piece of blood.

On tracing down the alimentary canal, no disease or obstruction could be met with, until, on arriving at the second stomach or gizzard, I found it distended to the utmost with food, and for rather more than an inch above the cardiac orifice, the alimentary canal was also distended, as if some cause prevented the natural passage of the food ; the intestines below the gizzard (except at a very short distance from the pyloric orifice, which was also distended with food) were empty. Here, then, I was led to expect some explanation of the cause of obstruction, which had no doubt occasioned the death of the bird. I laid open, with my scalpel, the slightly-distended intestine just below or about the pyloric orifice. The cause of the obstruction was made evident, by the appearance of a *polypus*, which came out, being situated just below the part which was distended, evidently forming the cause of obstruction to the passage of the digested food. This *polypus* measured, in length, two inches and six-eighths ; and in its greatest breadth, three-eighths of an inch. It was rounded at one end ; tapering almost to a point at the other. Part was of a bright vermillion, and the remainder of a dirty or yellowish white.

Upon a further examination of the interior of this portion of the intestine, there was a thickening of the villous coat, with much secretion of mucus, and also of coagulable lymph. The whole of the remainder of the alimentary canal had its external coats very vascular.*

The specimen was a female, and, from the similarity of plumage, the others must also be females. The plumage accords with the description given in our works of natural history of this bird. Some bird-fanciers observe, that they can distinguish *male* from *female* birds by the sub-scapular feathers near the base; the male birds having always an odd number—as five, seven, nine, eleven; and the females always an even number—as six, eight, twelve, &c., according to the species. But, examining, on a subsequent occasion, a male specimen of this bird, I found no difference of plumage, so as to form a sexual distinction.

The two other birds are perfectly healthy in appearance; but as the dead one was so in its external appearance, it is difficult to judge of

* I have preserved the whole of the alimentary canal from the oesophagus to the rectum, (including the distended gizzard left unopened,) in an entire state in spirits. The liver, ovaries, and trachea, I have also preserved in a similar manner, and presented to the Royal College of Surgeons, in London.

their health, if suffering from an obstruction similar to that just described.

We lost the south-east trade in south latitude 29° , and east longitude $39^{\circ} 40'$ east.

On the 4th of February, in the afternoon, the high land about Cape Delgado was seen, bearing north-north-east by compass about forty miles distant. We sounded on the bank in seventy-three fathoms, with a bottom of sand and broken shells: the latitude, at noon, being $34^{\circ} 57'$ south, and longitude $22^{\circ} 42'$ east. On the 6th, at six P. M., Cape L'Agulhas was seen bearing north-north-west by compass, distant about ten miles; and at noon, of the 7th, the Cape of Good Hope was seen, bearing north-east, about forty miles distant. We passed the Cape, with a fine south-east wind, having experienced remarkably fine weather during the whole of this portion of our homeward voyage.

We had a continuation of fine weather and strong south-east winds, which led us to hope that it would carry us at once into the trade-wind, and, by that means, expedite the passage; but in this we were disappointed: for although it carried us until the 14th, on that day in latitude $24^{\circ} 56'$ south, and longitude $4^{\circ} 00'$ east, we had light and variable winds and calms; wind varying from south-east to north-west, very light.

This continued until the evening of the 18th, when, in latitude $21^{\circ} 57'$ south, and longitude $1^{\circ} 5'$ east, we had a fresh trade-breeze.

About nine A. M., when in latitude $23^{\circ} 45'$ south, and longitude $2^{\circ} 50'$ east, on the 16th of February, having fine weather and calms, and light airs from south-west, a large piece of the *Laminaria buccinalis*, or trumpet-weed of the Cape, measuring, probably, twelve or fourteen feet in length, floated by the ship. It is one of that species of the marine flora, which may justly be considered as giants. This specimen appeared, covered with various kinds of crustacea, which made me regret I could not procure it. The long, tuberous stalk was nearly stripped (I suppose by the action of the waves) of its long, flat, and expansive fronds. This is in favour of the current, which is stated to set to the north-west, between the Cape and St. Helena. We, however, have not experienced any since the first day we left the Cape, when we had on that day sixteen miles of current during the twenty-four hours.

On the following day, (17th,) another piece of the same kind of weed was seen at a short distance from the ship; and this was the last we discerned, having seen two specimens, one in the morning, the other in the afternoon of the pre-

vious day. On the 17th, we were in latitude $22^{\circ} 58'$ south, and longitude $1^{\circ} 56'$ east. We saw no more of the weed after this day.

From the 18th we experienced a very light trade wind, so that we did not make the island of St. Helena until the 23d at noon, when it was seen bearing north-west-by-west by compass, and distant about thirty miles. We drifted a short distance to leeward during the night; we however soon beat up, passed high, rugged, volcanic rocks, towering and gloomy, descending in abrupt precipices to the water's edge; and passed *Buttermilk Point*, about which every ledge either was fortified by small batteries, or by a solitary gun, on the sides of mountains of a towering height. After opening this point, the anchorage and town appears to the view; and by 8 A. M. we had anchored off James's Town (February 24.)

The first approach to this island is far from being attractive to the visitor, consisting of lofty, sterile precipices, without a speck of verdure to relieve the eye. The summits of the highest around the island are occupied by signal stations, and are almost in constant requisition, from the number of vessels continually arriving at this "Rock." Small batteries, mounting several guns, occupy every ledge of rock where defence

seems to be required ; and in some places a solitary gun is perched ; so that the island is rendered perfectly impregnable both by nature and art. On advancing toward the anchorage, the barren cliffs, which before alone met the eye, are both varied and contrasted by mountains covered with verdure, rising from the inland part of the island, about which a few white houses are also seen scattered.

The castellated building, called High Knowle, has a pretty and picturesque effect, perched on the summit of a very high eminence, and reminding one of the castles in similar situations seen on the picturesque banks of the Rhine.

James's Town is a small, neat town, built in a vale, or glen, which gradually recedes as it proceeds inland ; and the town is confined on each side by volcanic cliffs of a great elevation, and of the most barren aspect. The neat church is readily distinguished by its tower ; and the green foliage of vegetation in the gardens adjoining the houses charms the eye by the agreeable contrast.

We landed, without inconvenience, at the steps near the watering-place, on the left of the anchorage ; but it often happens that the surf and eddy renders a landing extremely inconvenient, and even dangerous. A broad causeway led to James's

battery, heavily mounted with cannon, and situated in front of the town. Here I observed a grove of trees, the *Ficus religiosa*, whose presence afforded an agreeable shade: it is a tree usually seen planted in India about the Hindoo temples, and held in veneration by the natives. Passing through a gate, we entered the esplanade, in which the government-house and garden and the church are situated. The principal streets and shops of the town, and some very neat houses in the English style, attract the attention of the visitor.

The extent of the town (from being built in a narrow, receding valley) cannot be seen until the ascent of the Longwood road is gained, when it gradually opens,—and the barracks, hospital, and houses, surrounded by neat gardens, in the villa style of architecture, have a very pleasing effect, more particularly by contrast, as the towering, rugged rocks, on each side, are destitute of any verdure.

Although buildings, language, manners, customs, &c., are all English, yet the number of black and tawny people gives a foreign appearance to the place; nor was our surprise lessened, by walking in the evening about the town, to observe the incredible number of children, of all the variety of tints between

white and black, playing about. It would excite Malthus, after viewing the comparative sterility of the island, and seeing its incapability of providing for a surplus population, to rail against such an astonishing increase of the human race.

Over-population is not the only complaint in the town. The streets are not so well paved, and the rugged stones impede the pleasure which the stranger would derive from a walk, after he had been for some time confined in the limited space afforded by a ship. Of fruit, some large pears, peaches, grapes, and figs, were abundant, and could be purchased at very reasonable prices. Excellent vegetables, consisting of carrots, turnips, French-beans, cabbage, water-cresses, and cucumbers, were to be readily procured, forming refreshment to visitors after a protracted voyage, and excellent stock for shipping.

The great object of attraction, however, to the visitor, and the interest, both on the first appearance, and on landing, is naturally directed towards *him* who was an exile on this barren rock—the hero of a

“————— thousand thrones,

Who strew'd our earth with hostile bones.”

Formerly the ruler of kings, he died and reposes in the place of his exile, affording a

lesson to posterity of the uncertainty which hangs over human affairs ;

“————— it will teach
 To after warriors more
 Than high philosophy can preach,
 And vainly preached before.”

The whole island may be viewed as the gigantic mausoleum of him, whose ambition raised him from a humble station to a palace, and, at last consigned him to a miserable rock, laved by the boisterous waves of the Atlantic, and which now contains all that remains of his former splendour and greatness.

“ The desolator desolate !
 The victor overthrown !
 The arbiter of others’ fate
 A suppliant for his own.”

The number of French vessels that arrive every year at this island, almost solely for the purpose of visiting and weeping over the grave of him who formerly ruled France, and at one time almost held the destiny of the world in his grasp, is considerable. At this period of our visit, several French vessels, consisting of a brig of war, and others, were lying in the anchorage; and on the road to Longwood, parties of the crews of the several vessels were seen, and ve-

hicles and horses of all descriptions were in requisition to convey the male, female, and infantile arrivals of that nation, to visit the reposing place of all that is mortal of "Le Grand Napoléon," and to see the residence, or rather the prison, of the late emperor. To view this place, in its present degraded state, used as stables and barns, ought to cause an Englishman to blush at the want both of the finer feelings and generosity of his nation towards the departed greatness of the ex-emperor, whose terror terminated with his death. And who would not feel for the visitors of a nation who idolize his memory, when they view a spot, so sacred to them, so degraded by us? What their sentiments are at the time, none but those who feel like them can imagine.

I cannot refrain from quoting an American author, who makes the following observation when on a visit to St. Helena. "Who has not admired the power of genius that raised him to his glory? Who did not feel some sympathy, at least, in the depth of his fall? Who did not commiserate him in the distance and desolateness of his exile? And who, with the vivid impressions of the wretchedness and discomfort of his captivity, forced upon them by the scene in the midst of which we now were, would not be dis-

posed to believe every charge of unkindness and oppression that has been preferred against his keepers? However different the state of the establishment might have been when inhabited by Napoleon, all the associations of a visitor, with his situation during the time, take their colour from what is seen ; and the rooms should have been preserved in the condition in which they were left, or the whole should have been razed to the ground."

CHAPTER XII.

Tomb of Napoleon—The willows—Contrasted feelings of the French and English visitors to Buonaparte's grave—Fish—Sail from St. Helena—Island of Ascension—Frigate birds—Shark sucking a Pilot Fish—The sargasso weed—Condition of the Crowned pigeons—A swallow captured during migration—Temperature—Arrival at Gravesend.

THE day of our arrival we visited the place of repose of the mortal remains of Napoleon. The rising road towards Longwood was cut on the surface of a lofty, barren hill, gradually ascending as we advanced, which afforded a sterile view, varied by a few scattered shrubs of Cactus, Furze-bushes, and Frocoides, bestowing some animation by their blossoms to the arid soil, which barely seemed capable of affording them nourishment. The varying view of the town and shipping on the ascent, formed a picturesque scene, and gave some interest to the monoto-

nous character of the country. On advancing, the distant view of a cascade, which falls into a small stream over a fresh-looking green sward, and which supplies the shipping with that necessary article of life, is a pleasing sight, the water being conveyed to the landing-place at the town by means of iron pipes.

The Briars is passed on the right, but much altered in appearance since it was honoured by being the temporary residence of the Corsican. There are some plantations of mulberry-trees at this place, for the purpose of introducing the cultivation of silk on the island ; but which, I should suppose, will never succeed to any extent.

Before reaching the grave, the eye is charmed by the deep glens, plantations, and neat houses. The furze-bushes with their yellow blossoms, the bramble, and other European plants, reminded the voyager of home and all its endearing charms. The hedges of the aloe, with its high stem surmounted by clusters of flowers, together with the carolling of the numerous birds from all countries, which had been introduced and set at liberty on the island, increased the delight which had been already experienced.* The

* Some of the fir-trees in the plantations we passed had

The pheasant and partridge have also been introduced, and thrive well. At last, on arriving at a more level road, the beautiful fertile vale was seen, descending from Huyt's Gate, but becoming, as it advances towards the sea, a series of deep, rugged and romantic ravines, destitute of any vegetation, and varied by the different tints afforded by the volcanic strata.

The grave of Napoleon, when descried from the height above, has a pleasing aspect, and the view of it from that situation is very picturesque. A pathway leads to the place ; and by a gradual descent the visitor arrives at the tomb of Napoleon, overshadowed by the weeping willows. About the spot are gay hedges, brilliant with the blossoms of the scarlet geraniums, the flowers of a pretty *Althæa*, of a straw colour, and others. The green-sward around the tomb gives a freshness and beauty to this spot, consecrated by the late ruler of thousands, who now reposes in the solemn stillness of death, under the shade of his chosen, mournful, but fast-perishing trees.

The willows show evident symptoms of age. They seem to be getting more and more thin of branches. Since a visit I made to this spot, in a very peculiar appearance, from the trunk and branches being covered by a dark-red lichen, which gave them the appearance of being painted.

February, 1831, another of the trees has perished, although the trunk still remains erect in its place. Thus, of five trees (the original number) only three now remain : their age is about thirty-five years ; they were planted by Mr. Tarbut, a resident at St. Helena, and former possessor of the spot we were now visiting. A number of slips from the old trees have been planted on the opposite side of the grave, and being in a flourishing condition* on the death of the old trees, the stock will be perpetuated by the young ones. There are also several cypresses planted in the inclosure, with every appearance of becoming handsome trees.

On entering a wicket-gate, a short path leads to a paling, inclosing a green lawn, in which, surrounded by a plain cast-iron railing, is the vault in which the body of Napoleon, arrayed in full uniform, is deposited, inclosed in four coffins. The vault is extensive, and covered by three plain Portland stones taken from the kitchen of the new house at Longwood,† and cemented

* As the willows require much moisture, they are carefully watered every morning and evening by the soldier who attends and has charge of the place.

† Which is at present occupied by the governor, the former residence, Plantation-house, being found in a very unhealthy situation.

together. An order from the town-major enables strangers to enter the inclosure, procure slips of the willow, and, one of the cast-iron railings surrounding the vault being broken, either accidentally or on purpose, the attendant will permit visitors to enter and tread over him now dead, who, when living, trod on the necks of monarchs.

Should there be visitors of both the French and English nations at the sepulchre of Napoleon, it is interesting to observe the feelings produced in the minds of both: the first regarding the spot as both sacred and classic, by the presence of the mortal remains of one, the former ruler of their nation, and who, under the revolutionary flag, had gained so many laurels, which it was his fate to lose at Waterloo, against an allied army. He then found himself a voluntary prisoner, on board one of those British ships of war, which had, under the proud banner of Britain, cleared the ocean of his ships, and he at last died an exile on the rock of St. Helena. This affords a fine lesson to posterity, of a great genius, who having elevated himself to be the ruler of a powerful nation, fell, and died in captivity, through his over-ambition. The French shed tears on visiting the grave of their beloved emperor; and the album, kept at the tomb for the

reception of the names and tributary effusions of the visitors gives ample evidence of the feelings which a visit to this spot produces in their minds, and displays the characteristic fervor of the nation.*

Such may be the feelings of the former ; but the majority of the English display a recklessness of manner, or mere feelings of common curiosity, on visiting a place so interesting. No one ought to visit this spot without reflecting on the life of him, whose sceptre fell from his grasp, and left him to live and die an exile, attended only by a faithful few,—all they asked was

“ To divide
Every peril he must brave ;
Sharing by the hero's side
His fall, his exile, and his grave.”

Close to the grave is the clear spring whence the water for his use was procured, and on once visiting the spot, he selected it as his resting-

* After the revolution at Paris, in 1830, and the tri-coloured banner had again waved over the towers of France, when the first French ship arrived at St. Helena, with that revolutionary standard at her gaff, her commander and crew visiting the tomb, placed a tri-coloured cockade upon it, glorying in “restoring to him his colours, under which he had so often led the French nation to victory, and which ensign was again the emblem of liberty to France.”

place, should he die upon the island ; a foreboding realized not a very long time after.

On returning from our visit to the tomb, and dining, we took a walk about the town, and entered the small garden, kept in very neat order, dignified by the name of Botanic Garden ; it affords a cool and agreeable promenade, but contains nothing to excite the attention of any one who had previously visited India.*

News having arrived at the island, of its having been changed from the Honourable the East India Company's to the King's government, much speculation has been excited in consequence both among the Company's officers and residents. As may be expected, on such a subject, there is a great variety of opinions : the inhabitants enjoy their own notions, none of which will probably ever be realized. They are daily in expectation of news from England on the subject, to relieve them from suspense.

Fish is very abundant, and not confined, as I formerly supposed, to albicore, mackarel, boneto, and flying-fish ; but they have a great number of species, (it has been stated amounting to even so many as a hundred and twenty,) consisting of

* The want of rain for the plantations appears to be much needed ; but next month heavy rain is expected to fall.

bream, perch, &c. ; and many I tasted, were of very excellent and delicate flavour.

On the afternoon of the following day, (25th,) we sailed from St. Helena, and experienced between that island and Ascension a light trade-wind, which would occasionally freshen for a short period. Early on the morning of the 4th of March, the *Island of Ascension* was seen, bearing north-west-half-west, by compass distant about twenty-five miles.* Our course was steered, so as to pass close to the settlement. The appearance of the island is sterile in the extreme, seeming only calculated for the habitation of the numerous oceanic birds which hovered about the ship in great numbers. Volcanic rocks, in rugged and mis-shapen masses, terminating in abrupt precipices, or shelving declivities, form the principal feature of the island. And when the clouds which enveloped the Green Mountain passed away, its verdant character contrasted in a very beautiful manner with the sterile rocks and mountains, red with the *tufa*, or volcanic ash, beneath. Some little white habitations, perched on the ledge

* A large gannet was seen flying about the ship on the afternoon of the previous day, indicating a near approach to land: we were at that time about ninety miles distant from the island.

of one part of the lofty eminence, and distinctly seen from the ship, had a very pretty and pleasing effect, as a bright sun diffused its rays over the scene, which for some time remained clear from even a passing cloud.

A number of gannets were busily engaged in fishing, and, from the shoals of flying-fish about, must have enjoyed excellent sport. The frigate birds, (*Trachypetes aquila*, Vieill.) on the contrary, hovered over the vessel, viewing with curiosity the expanded sails and progressive motion of the ship, "walking the waters like a thing of life," regarding it, with their usual indolence and aristocracy of manner, instead of fishing like the other industrious birds about them. From all the frigate-birds having white abdomens, and being deficient in the red pouch, I presume they were females. The bills of the whole of those about the ship were of a dirty white colour, although described in several works of natural history as red.

On a former voyage, a female of the man-of-war hawk (*Trachypetes aquila*) was shot off this island from the deck of the ship, from the numbers which hovered over the vessel. The bird, when struck by the shot, made for the land; but soon after, as if feeling that it would be unable to reach it, returned, with a wavering flight,

towards the ship, and we felt confident that she would come on board ; approaching the ship, her flight became lower and more unsteady, until she fell dead into the water, quite close to the ship, near the mizen chains, just as we were in expectation that she would have fallen upon the poop.

Numerous sea-swallows (*Sterna hirundo*, Linn.) and brown boobies flew about the ship as we approached nearer the land ; the former fishing in groups. After the toil of the day, they return in small flocks to the island, usually about the close of the evening, (as well as the gannets and other birds that do not wander far from the land,) reposing and breeding among the ledges of the huge masses of sterile volcanic rocks.*

The frigate birds, or (sea-hawks, as they are also named,) are seldom or never seen far distant from land : the male birds are black, and have a red pouch ; the females have a white breast, and are destitute of the pouch. In procuring fish for their food, these birds prefer seizing it from the boobies and gannets, instead of catching it them-

* Three lazy frigate-birds, too indolent to fish for themselves, were seen, pursuing an unfortunate sea-swallow, which had probably succeeded in capturing a fish. It is usual for these birds to pursue the gannets, and others, when returning from their fishing excursions, compelling them to disgorge their fish.

selves. To attain this object, the sea-hawk hovers above the gannet, (which is the bird most usually selected for attack,) and, darting rapidly down, strikes him on the back of the head, causing him to disgorge his prey, which is seized by the hawk with an inconceivable rapidity before it reaches the water, and afterwards soars aloft to look out for another object of attack. It is not an uncommon circumstance to observe a single gannet selected from a flock, and come out to be the subject of attack, as if he had been called by the hawk in preference to the others. The gannet, however, manœuvres to avoid the blow, by darting about, lowering himself from his elevation in the air at every dart, and, raising his beak in a perpendicular direction; by these means it eludes the blow of the hawk from behind, and they frequently both fall into the water together; the hawk only having the advantage over the gannet when hovering in the air, the latter escapes. At the Island of Ascension, where these birds are common, I was informed by Lieutenant M'Arthur, (Marine Artillery,) that the method practised by the hawks to oblige the gannet to disgorge their prey, was tried by a gentleman who lately visited the island : he had seen the attack of the hawk on the gannet, and the successful result. When he visited the part of the island named "The

Fair," where these birds congregate in great numbers, he struck some of them with a cane on the back of the head, and the disgorgement of the fish they had swallowed immediately took place.

By three P. M. we were off the settlement, in the roadstead of which an American ship, and several British men-of-war, were lying at anchor. We did not enter the roadstead, but, hoisting our ensign and number, proceeded on our voyage, and by the evening left the island far in the distance.

Having on a former voyage, in 1831, visited and landed upon this island, I perhaps may be excused for introducing the following account, from observations made at that period :—

About noon (of the 10th of February, 1831) we were off the settlement situated on the north-west side of the island, and several neatly-constructed houses appeared enlivening a little the barren scene around. A transport (St. Croix) was at anchor in the roads, having just arrived with stores; a boat came off from the settlement, with a book, in which the ship's name, &c. was inserted. I accompanied the commander on a visit to the shore: the landing is sometimes dangerous, on account of the surf; at this time it was very easily effected. The landing-place was on a flight of steps, at the extremity of a

wharf; a small crane was near, to assist boats in approaching, and persons in landing. A delightful trade breeze rendered the air cool, which would otherwise have been intolerable, on account of the reflection of the sun from the sand and lava. The residences of the garrison, store-houses, &c., were neat constructions, and had been lately completed: many other buildings were in progress. The island has now been fortified at every part considered accessible; these points being few, however, not many batteries were required. The establishment consists of marines and marine artillery, (about four hundred,) under a commandant, Captain Bates. The privates are masons, carpenters, quarrymen, &c.; the houses are constructed by them, and, in fact, they undertake all the laborious work. This island is considered of great importance, being directly in the track of our homeward-bound shipping from the East Indies, &c., and would, in the event of a war, have afforded a rendezvous for the enemy's cruisers.

I was informed that excellent soil was found under the lava, at a depth of two feet: cultivation of vegetables, &c. is at present confined to the green mountain; the present object of fortifying and erecting buildings on the island being completed, cultivation will be more attended to.

The beach, at first thought to be composed of sand, was found to consist of very small fragments of shells : in some places they had become (from some cause not readily accounted for) firmly compacted together. These slabs were formed of several layers, of which the size of the fragments differs in each layer : they are used for tomb-stones, steps of doors, and are broken and burned for lime. Of the vegetable kingdom, a species of *Euphorbia* only was growing, distributed in small tufts, but not very abundantly, about the rugged lava ; it was at this time in flower : this simple plant was, indeed, a beautiful object amidst such barren scenes. There are three species of butterflies on the island, of handsome colours.

A great acquisition to the island has been a good supply of water : a shaft had just been sunk upon one of the mountains, and several tons of water had been raised daily. The only inconvenience is their being obliged to bring the water down by casks in carts ; but iron pipes, from England, are now being laid down, to convey the water to the wharf, and the shipping will be supplied by means of hoses. Moorings are laid down in the roadstead. The turtle-ponds were well stocked with turtles of large size, varying from two to eight hundred weight each : the price fixed, was fifty shillings each. We were

politely invited, and dined with the officers at their mess. At a place called "The Fair," the birds named sea-swallows, as well as numerous other aquatic birds, congregate; and the eggs of the sea-swallows, which are of a dirty white, with dark red spots, and about the size of crows' eggs, are there collected at certain seasons of the year, in thousands: several of these were given to us, and found delicate and excellent eating. It was dark before we went off to the ship, and a heavy surf rendered the embarkation very dangerous: no boats should attempt going off after dark. A marine, named James, who was a little intoxicated, fell into the water, and, being overpowered by the violence of the surf and the eddy, perished. After some difficulty, we all re-embarked, and, getting safely on board, resumed our voyage.

The island is considered generally healthy, dysentery being the only disease experienced; and the temperature of the air pleasant, being seldom higher in the shade than 83°, the constant trade-breeze tending to keep the atmosphere temperate. Merchant-ships, in distress for supplies, may here obtain them, the only extra charge made by the government being the freight from England. Fish can be procured in some quantity, and a kind of conger eel, procured at this island, had,

when brought to the table, the bones of a lilac colour.

We experienced a very light south east trade wind for almost its whole limit, and lost it in lat. $00^{\circ} 36'$ north, and lon. $20^{\circ} 40'$ west. We afterwards experienced calms and light airs, with but little rain. On the 13th of March, in lat. $1^{\circ} 23'$ north, and lon. $22^{\circ} 15'$ west, several sail were in sight, steering to the southward; and about two P. M. we spoke the barque, Lord of the Isles, last from Falmouth, bound to Calcutta: she left Falmouth the 7th of February. A boat was sent from the barque, bringing letters for conveyance to England, and newspapers of December and January, which afforded us some knowledge of how the world was going on.

Sharks, accompanied by pilot-fish, and having several of the Remora, or sucking-fish, attached to them, were occasionally about the ship during the calm weather.

Sharks are formidable from their muscular strength and the numerous rows of teeth with which their expansive and powerful jaws are armed: they may be considered as the most destructive and voracious of all the inhabitants of the deep. Their stomachs, which are of enormous capacity, are generally found filled with a mixed collection of substances, some of which

seem calculated to try the strength of their digestive powers. . It does not appear that their sense of smell always guides them in procuring food, as paper, canvas, or indeed any thing thrown overboard which they are capable of swallowing, is greedily devoured by them. To decide correctly on the *habitat*, or extent of range, taken by any particular species, is difficult, and requires a numerous collection of facts. Frequent mistakes are made in this respect ; as in the instance of the *Squalus cornubicus*, or porbeagle shark, whose *habitat* was supposed to be confined to the British coasts, but which I have since discovered has been found, although rarely, inhabiting the coasts of New Zealand.

The teeth of sharks vary in different species. Blumenbach observes, that “ in most of the sharks the mouth is furnished with very numerous teeth, for the supply of such as may be lost. The white shark has more than two hundred, lying on each other in rows, almost like the leaves of an artichoke. Those only which form the front row have a perpendicular direction, and are completely uncovered. Those of the subsequent rows are, on the contrary, smaller, have their points turned backwards, and are covered by a kind of gum. These come through the covering substance, and pass forward, when

any teeth of the front row are lost. It will be understood, from this description, that the teeth in question cannot have any fangs.”*

The shark, no doubt, sheds its teeth at certain periods, and the posterior rows are to supply, in succession, the places of those so lost, as, in a number of jaws that I have examined of different species, the second row may frequently be seen in a perpendicular direction, advancing to supply the place of the first. With respect to such teeth having fangs, those of most species have merely rudiments of them, excepting the *squalus cornubicus*, or porbeagle shark, which has two distinct fangs to every tooth, and they may be seen in the second and third, as well as in the first rows. The posterior rows having their points turned backwards, prevent their prey, when seized, from escaping. The teeth of the shark are used by the Polynesian natives, fixed in rows, as knives. They are attached also to their spears, are used for cutting themselves on occasions of joy or grief, and were employed, previously to the introduction of European knives, for the ornamental carving of their weapons, domestic utensils, &c.

There is a species of shark at New Zealand

* Blumenbach's Comparative Anatomy, by Lawrence and Coulson, page 76.

which I have heard named, by seamen, the *ground shark*: the teeth procured from this species differ from all others that I have seen; they are long, rather curved inwards, flattened anteriorly, sharp pointed, *unserrated at the edges*, and have *two rather long fangs*. They are considered rare at New Zealand, and the teeth are highly valued by the natives, who wear them, with a hole bored through them, as appendages to their ears; they carve their green jasper stone also in the form of these teeth, and wear them in a similar manner: these teeth were so highly prized by the natives, that to procure one was a matter of difficulty. I for some time, since my return to England, endeavoured to ascertain the species to which these teeth belonged, but I was unsuccessful, until lately examining the jaws of the various species of sharks in the Museum of the Royal College of Surgeons, in London, I found it to be the *Squalus cornubicus*, or porbeagle shark, which is thus noticed in the published catalogue of the college:—

“No. 1832.—The skull, and part of the spine, of a small Porbeagle shark. *Squalus cornubicus*. Fig. Borlase’s History of Cornwall. Habitat. The British seas.”

This species, from its magnitude when full grown, has sometimes been confounded with the

squalus carcharias, or white shark.—Presented by Dr. Leach, 1820.

The fore-teeth, near the symphysis, accorded in every respect with the New Zealand specimens ; more posterior they became equilateral, but were all unserrated at their edges.

The capture of one of these voracious animals frequently beguiles a tedious hour during a long voyage. Its struggles, when brought on deck, are very great, but a few severe blows on the nose soon disable it from further exertion. When seizing any object, the animal turns on the side, not (as is generally supposed) on the back. The shark, judging by an European palate, is not good eating: the fins and tail are very glutinous, and are the portions most relished by the seamen ; when dried, they form an article of commerce to China, where they are used in soups, and considered as an excellent aphrodisiac. I have seen several sharks and bonitos about the ship at the same time, but I never observed the former attempt to molest the latter. The shark is eaten eagerly by the natives of the Polynesian Islands, and I have often seen them feasting on it in a raw state, when they gorge themselves to such an excess as to occasion vomiting. It is not an unfrequent source of illness among these islanders, and they suffer so much in conse-

quence, as to lead them to suppose that their dissolution is nigh; but they cannot be persuaded that the eating of raw fish is the cause. An emetic soon removes the symptoms, by removing the cause; and the sufferer considers the cure as almost miraculous.

Attending the shark, is seen that beautiful little fish, the *Gasterosteus ductor*, or *pilot-fish*; which first approaching the bait, returns as if to give notice, when, immediately after, the shark approaches and seizes it.* It is a curious circumstance that this elegant little fish is seen in attendance only upon the shark. After the shark is hooked, the pilot-fish still swim about, and for some time after he has been hauled on deck; they then swim very near the surface of the water, and at that time I have seen them taken by a basket from the chains of the ship. When the shark has been hooked and afterwards escapes, he generally returns, and renews the attack with increased ferocity, irritated perhaps by the wound he has received.

* The shark is more wary of taking the bait when unaccompanied by the pilot-fish; it will then approach, and retire, several times before it ventures to seize it; but when the little pilot is in company it will first approach the bait, (the shark waiting at some distance,) and return, as if to report; when the shark advances and seizes the bait without hesitation: this I have remarked in numerous instances.

On the 18th of March, 1831, during my former voyage, in lat. $44^{\circ} 56'$ north, and long. $25^{\circ} 10'$ west; in the evening, two sharks of a very large size were seen at a short distance from the ship. A high dorsal fin, projecting from the water, was at first only discernible, and had a resemblance to a rock.* It was at first stationary, but soon began to move steadily along, and then occasionally the tail could be seen partially above the water. I know not to what species to refer it; one of the crew on board, who had been in a whaler, said that it was what they named a "*bone shark*," which is seen in numbers alongside the ships when they are cutting up a whale. He said, also, that he had seen them as large as a *twenty-barrel whale*; that "the mouth resembled the gill of a fish, and they are spotted over the back." Whether the latter part of this account accorded with the actual appearance of the fish, I was not sufficiently near to ascertain, but it appeared correct with respect to its large size.

The natives of the Polynesian islands have

* Being at first stationary, and of a dark colour, a ship passing it rapidly might have considered it as one, and reported accordingly, and such a circumstance has no doubt caused many rocks to be laid down in the charts which have actually no existence.

such a dread of sharks as to worship some of them as gods ; not from any respect or love towards them, but from fear. Ellis states, that, “ although they would not only kill, but eat certain kinds of shark, the large blue sharks (*Squalus glaucus*) were deified by them ; and, rather than attempt to destroy them, they would endeavour to propitiate their favour by prayers and offerings. Temples were erected, in which priests officiated, and offerings were presented to the deified monsters ; while fishermen, and others who were much at sea, sought their favour. Many ludicrous legends were formerly in circulation among the people, relative to the regard paid by the sharks at sea to priests of their temples, whom they were always said to recognize, and never to injure. The principal motive, however, by which the people appear to have been influenced in their homage of these creatures, was the same that operated on their minds in reference to other acts of idolatry : it was the principle of fear, and a desire to avoid destruction in the event of being exposed to their anger at sea.” *

* In one of the fabulous legends of the natives of the Island of Tabiti, their island is represented “ as having been a shark, originally from Raitea. Matarafau, in the east, was the head ; and a place near Faaa, on the west, was the tail ;

In olden times sharks were considered to be allied to the Leviathans of the deep, and afforded then, as at the present day, amusement to passengers traversing the ocean. The following account of the capture of one of these voracious animals, from Dr. Fryer's "New Account of India and Persia," published in 1698, is amusing :—

“ Two of the *lesser offspring of the great Leviathan* (the weather being calm, these sort of them else not visible, being of no swift motion) came sailing after us ; our men, as eager of them as they of their prey, hastened their engines for to take them ; which no sooner in the water but each of them, guided by some half-a-dozen delicately-coloured little fishes, which, for their own safeguard, perform the office of pilots, (they never offering to satisfy their hunger on them,) who lead them to the baits ; when they, turning their bellies up, seize upon them on their backs, hook themselves in the toils, beating the sea into a breach, and not without a great many hands are drawn over the sides of the ship ;

the large lake Vaihiria was the ventricles or gills ; while the lofty Orehena, the highest mountain in the island, probably six or seven thousand feet above the sea, was regarded as its dorsal fin ; and its ventral fin was Matavai.”—*Ellis's Polynesian Researches*, vol. i. page 167.

which seen by the poor silly little fishes, (as conscious of their error,) they swim to and again, and hardly forsake the ship; but being within board, the ship's company, armed with hatchets, presently divide the spoil. They are not scaly, and therefore imagined to be a kind of whale, being finned like them, with a great fin on their backs, near their tails, (which dried, is used instead of a slate,) of a darkish-grey colour on their backs, lighter on their sides, and white under their bellies; their snout on the same plain with their mouths, but their mouth within that a great way; the cause why they turn their bellies when they take their prey. The mouth of one of them extended, is two spans wide, armed within with three tier of sharp-pointed teeth on both jaws, so piercing that needles exceed them not, and of such strength that a leg or an arm, bone and all, is but an easy morsel; wherefore called *sharks* by the seamen, on whom they are bold enough to fasten and dismember, if not shunned, when they wash themselves. They are of a rank smell, and not good to eat but by stout stomachs; of length they are ten, sometimes fourteen feet."

I shall now make a few observations on muscular irritability, as exemplified by the shark. That which is termed muscular irrita-

bility, and which is met with to a great degree in all cold-blooded animals, is well exemplified in the shark, which perhaps possesses it to a greater degree than other kinds of fish. I have seen a shark transfixed with a harpoon after it had been hooked, so as to cause the viscera to protrude ; it was hoisted on deck, when, after a quarter of an hour had elapsed, the lower part was separated from the upper ; (which detached lower portion for a long time displayed great powers of vitality ;) the head and upper portion were afterwards thrown into the water, when the pectoral fins were moved as in the action of swimming. How long this irritability continued I cannot say, (but from other instances that I had seen, I should consider for a long period,) as it soon went astern of the ship. I have frequently seen the animal hauled on deck, the whole of the viscera extracted, and the body otherwise mangled when thrown overboard, swim for some distance in this mutilated state. Again, a shark has been hung up with the abdomen ripped open, the whole of the viscera extracted, and the head detached ; yet symptoms of vitality, or rather muscular irritability, remained for three hours from the time of its removal from the water ; and this frequently occasions the spectators to consider that the animal is in a

state of suffering. It is only in the cold-blooded animals that we meet with it to such an extent ; in the warm-blooded animals it occurs, but in a very slight degree.

Blumenbach, in his *Manual of Natural History*, thus mentions the reproductive power and independent vitality with reference to the *Amphibia* :—“ The extraordinary strength of the reproductive power in several *Amphibia*, and the astonishing facility with which the process is carried on, depend, if I mistake not, on the great magnitude of their nerves and the diminutive proportion of their brain. The former parts are, in consequence, less dependent on the latter ; hence the whole machine has less powers of motion, and displays less sympathy ; the mode of existence is more simple, and approaches more nearly to that of the vegetable world than in the warm-blooded classes ; but, on the contrary, the parts possess a greater individual independent vitality. Since, in consequence of this latter endowment, stimuli which operate on one part, or one system, do not immediately affect the whole frame by sympathy, as in warm-blooded animals, we are enabled to explain the peculiar tenacity of life which is displayed under various circumstances in this class—viz. frogs still continue to jump

about after their heart has been torn out, and turtles have lived for months after the removal of the whole brain from the cranium. The long-continued power of motion in parts which have been cut off from the body, as in the tail of the water-newt and blind-worm, may be explained upon the same principles."

The length of time that this irritability exists in snakes, has given rise to the opinion of the vulgar, that "if a snake is killed in the morning, it will not die before sunset." Among numerous instances of irritability in the warm-blooded class, shortly after death the heart may be stimulated to perform its natural action, by being punctured; and in a limb after amputation, the muscles are excited to contract by a scalpel being plunged into them.

The sucking-fish is commonly found adhering to the body of the shark. It is placed, by Cuvier, among the third order of fishes, or the *Malacoptérygiens subbrachiens*, which is characterized "Par des ventrales attachées sous les pectorales, et dont le bassin est immédiatement suspendu aux os de l'épaule." Its generic character is as follows:—Head furnished above with a flat, ovate, transversely sulcated shield. Gill membrane six-rayed. Body without scales.

When first removed from the water, the

colour of the fish of the common species was an uniform grey or lavender, which soon changed to a brownish colour; the tail was forked, or rather crescent-shaped. The sucking-plate, of an oval form, was situated on the upper part of the head, and was composed of seventeen transverse moveable cartilaginous plates, (but they vary in number, according to the size of the fish,) each armed with minute teeth directed backwards; from which cause it was difficult to detach the animal in a direction perpendicular or backwards, but it was removed with facility when drawn off in the direction of the head.

On inspecting the mouth I observed two rows of teeth situated on the margin of each jaw, one internal to the other, the outer row being larger and stronger than the inner; and it is probable that the inner row is intended, as in the shark, to replace the front row, when lost from time or accident. On the palate were also placed two rows of very fine teeth, and the other parts of the mouth were rough. I made several dried preparations of the head of this fish, which well displayed the form of the disk; and, by keeping the mouth distended, the rows of teeth could be distinctly seen and examined.

The fins are, two pectoral, two ventral, one dorsal, and one anal; the whole of which are of

small size, in proportion to the body of the fish, as well as the tail. The disproportion of the size of the head, and the diminutive size of the fins and tail, must consequently prevent its swimming to any distance, for when swimming its motion is very tardy, and apparently laborious. Nature has, therefore, provided it with a means of attaching itself to rocks, the bottoms of ships, &c.

I have seen them attached more commonly to the body of the *Squalus carcharias*, or white shark, than to any other species: whether it is that this species of shark is the most usually met with, I cannot determine; but on a blue shark, although accompanied by pilot-fish, I never, in the few instances I have met with, saw a *Remora* attached, although, in the other species, I have always seen some attached: if this, on further observation, is found to be the fact, it may be probably accounted for by the *Squalus carcharias* more frequently approaching the land. The sucking-fish not being able to swim any distance, must generally remain attached to rocks, &c., and from them removes itself to the shark as he approaches.

The sucking-plate enables these fish to change their locality, by attaching themselves to the stronger inhabitants of the deep, and precludes,

as on the rocks, the danger of their being driven by tempests remote from their usual food and rest. This fish is also destitute of an air-bladder.

The Remora was supposed, by the ancients, to have the power of arresting the progress of a ship under full sail; and, by others, their nourishment was supposed to be derived from the body of the shark, or from any substance to which it adhered: all these chimeras have, however, been long since dispersed. Their food has been found (from the examination of the contents of the stomachs of the specimens captured) to be minute marine insects, &c.

I have seen the Remora of a very large size. During a visit to the island of Tongatabu, one of the Friendly group, on August 1st, 1829, several were brought on board for sale, by the natives, which measured three feet and upwards in length. They had taken them with a hook and line. They were cooked, and found delicate and well-tasted. During also our passage through the straits of St. Bernardin to Manilla, several, of a large size, were seen swimming about the ship, but their movements were slow and heavy.

The most usual size taken from the body of a shark, is from six to twelve inches. The In-

dian Remora is said to be found of the length of two or three feet; and even, according to a description quoted by Dr. Bloch, to extend to seven feet. The usual number of divisions on its shield is from twenty-two to twenty-four.

The power of adhesion is retained for a long time, by this fish, after decapitation. I detached one of them from the body of a shark, decapitated it, and then applying the sucking-plate to a smooth surface, found the power of adhesion remained, and it continued for the space of nearly twenty minutes. The body of the animal, after the removal of the head, displayed much muscular irritability on being touched, and the pectoral and ventral fins moved for a long time afterwards.

The pilot-fish, as I have before observed, (*Gasterosteus ductor*;) is usually seen in company with the shark, and with no other voracious fish; it is of a beautiful azure colour, girded around the body by broad bands of a very dark blue. I have seldom seen them larger than a foot in length, but in breadth some exceed others. They have never been taken when in company with the shark, but, on the capture of that voracious animal, they hover

about him as long as he remains in the water; and a very short time after he has been hauled on board, they can sometimes be taken by a basket from the chains, as they swim at that time very superficially, and sometimes have been known (but rarely) to take bait.

On the 18th, in latitude $2^{\circ} 20'$ north, and longitude $25^{\circ} 26'$ west, we got the north-east trade, far to the northward, being north-north-east, moderate and fresh breezes,* and on the 7th of April, we lost the north-east trade in about $30^{\circ} 31'$ north, and longitude $44^{\circ} 20'$ west.

On the 1st of April, in latitude $23^{\circ} 17'$ north, and longitude $42^{\circ} 50'$ west, several tropic birds (*Phaeton oethereus*) were seen hovering over the ship; this was considered a very unusual circumstance, from the distance we then were from land. The longest distance these birds have been seen

* I am informed by Mr. William Holderness, that in the month of October, 1828, when on a voyage from Guayaquil and Lima, in the brig Bolivar, E. Bransfield, R. N., commander, having heard rumours of war in Europe, they touched at Pernambuco, to ascertain its correctness, and left the next day, carrying the south-east trade to about 12° north latitude. After a few days calm, they got fine breezes from south-west, which carried them across the usual limits of the north-east trade, and then had nothing but light north-east winds until they reached Gibraltar.

from land, has been stated to be three hundred miles, but by the observations at noon we were distant full one thousand miles from land; the nearest being the northernmost island of the Cape de Verd group. The distance at which birds supposed not to wander far from land, are sometimes seen, is surprising. Penguins have occasionally been met with several hundred miles from land, although they are commonly supposed not to wander from it any considerable distance. An intelligent lady informed me, that, during a voyage from England to Batavia, in the ship *Orynthia*, between the Cape and the latter place, a Penguin was shot, being rather more than a foot in length, and of a smooth slate colour over the body, with a white breast, (as well as can be recollected at a distant period,) the ship being then at a distance of eight hundred miles from the Marion or Crozette islands, with fine weather, nearly calm at the time. This occurred on the 22nd of October, 1831.

Captain Beechey also states, (*Voyage to the Pacific and Beering's Strait*, 8vo. vol. i. p. 16,) which tends to confirm the above fact, that, "as we approached the Falkland Islands from Rio Janeiro, some Penguins were seen upon the water in latitude 47° south, at a distance of three hundred and forty miles from the nearest land; a

fact which either proves the common opinion that this species never stray far from land to be in error, or that some unknown land exists in the vicinity."

On the 31st of March, in latitude 22° north, and longitude 41° west, the Sargasso weed was first seen, a few pieces occasionally floating by the ship. That these plants are produced within the tropics, there can hardly be a question; but at what depth they vegetate is still involved in obscurity: neither is it clearly ascertained why the banks of weed should always occur in the same places. The supposition that they proceed with the Gulf Stream from the Gulf of Mexico—whence the original name of gulf weed—is now exploded. This weed is considered to extend between the eighteenth and twenty-second parallels of north latitude, and the twenty-fifth and fortieth meridians of west longitude.

Mr. Neill justly observes, that "the gulf stream would convey them rather to the banks of Newfoundland than to the latitudes in which they usually occur; and it could not in any case accumulate them to the south of the Azores."

* Greville's *Algæ Britanicae*, 8vo.—The figure of the *Sargassum vulgare* in this work is coloured far too dark, and does not seem to have been done from a recent specimen.

Horsburgh, in his Directory, mentions the range of the weed, as being first seen in latitude 24° or 25° north, and extending as far as latitude 40° or 42° north, but I regard the limits of its range as depending much on the prevailing winds blowing strong for some time in a particular direction. On the 3rd of March, 1831, I first saw the weed in latitude $20^{\circ} 12'$ north, longitude $35^{\circ} 39'$ west. In latitude $24^{\circ} 16'$ north, and longitude $36^{\circ} 55'$ west, large quantities of it were passed, and in latitude $37^{\circ} 53'$ north, and longitude $35^{\circ} 32'$ west, we left it.

During this voyage it was first observed, as I have previously mentioned, on the 31st of March, in latitude 22° north, and $41'$ west longitude; and was seen in large quantities nearly the whole distance. From the trade wind being much to the northward, we were driven as far to the westward as $44^{\circ} 7'$, still continuing to have a quantity of weed about the ship; indeed it rather increased than diminished, for large masses were seen even thus far beyond the usual limit assigned to it; on the 12th of April extending to $38^{\circ} 32'$ north latitude, and $34^{\circ} 30'$ west longitude. The utmost western limit I had an opportunity of observing it in being $44^{\circ} 7'$, and the range of the temperature of the atmosphere in its limits being maximum 76° , medium 70° , minimum 59° .

Of the genus *Sargassum** there are numerous species distributed over the globe ; but the *S. vulgare*, or *Fucus natans*, and other species, are also described as having their *habitat* in the particular range I have before mentioned ; but I have not been able to find more than one species, some sprigs of which exhibit anomalies, but not specific differences ; for although apparently differing in having the leaves broader, and not so serrated at the edges, yet many of these were growing from plants which had not such distinctions. According to Greville, this genus, the most extensive of the *FUCOIDÆ*, comprising above seventy species, is nearly confined to the two tropics, and examples rarely occur beyond the forty-second degree in either hemisphere :—

“ Flung from the rock on ocean's foam to sail,
Where'er the surge may sweep, the tempests breath prevail ;”

will only now be partly applicable to this weedy, as it is tolerably well ascertained to vegetate floating on the water, each sprig becoming, as detached by the violence of the waves, the contact of ships, or other causes, a perfect and large plant ;†

* The generic name is derived from *Sargazo*, or *Sargazo*, the Spanish name for the masses of sea-weed found floating on the surface of the ocean.

† Greville's *Algae Britannica*, 8vo. 1830. Introd. p. xii.

This species of the *Sargassum*, found in such immense quantities, floating upon the surface of the ocean, is of a fine yellow colour, lighter or deeper in tint, being when very young of a greenish yellow colour; it is very buoyant, occasioned both by its lightness of structure and body of water to support it, as well as by the number of air vesicles with which it is profusely covered; it has a handsome appearance when seen spread out and swimming on the surface, or when just taken out of the water. On drying, it first retains the yellow, or greenish yellow, afterwards becoming of a reddish brown colour, but turning black, if exposed to the atmosphere when drying. The leaves are long, narrow, scattered, serrated at the edges in an irregular manner; the stems are studded with numerous air-vesicles in different stages of growth, spherical, and attached by a short pedicle to the stem. In many instances a young leaf would be seen emerging from the air-vesicle, and in others many of the leaves would have the air-vesicle (instead of being, as usual, on the stems) at the summit, forming a rounded termination to the leaf; some of the vesicles would have a longer and broader pedicle than usual, which assumed the character of an embryo leaf just forming, similar to what has been just mentioned as oc-

curring.* All the weed was more or less profusely covered with parasitical *confervæ*, displaying much delicacy and beauty.

I succeeded in capturing with the weed numerous specimens of small crabs, and some even of large size, small nereis, together with various specimens of fish, the *Syngnathus*, or pipe-fish, &c. The *Scyllea pelagica* was also abundant, clinging to the plants; and also numerous small sepia of a beautiful purplish colour.

In support of the opinion that the attachment of the fuci to rocks is not absolutely necessary for their nourishment, it has been observed of the *fucus nodosus*, that "this and some other fuci have no dependence on their root for nourishment, and therefore, instead of being ramified, it is merely a disc or button, by the adhesion of which, assisted, perhaps, by atmospherical pressure, the weed keeps an uncommonly firm hold of the rock to which it is attached." The air vesicles on a plant of course render it more buoyant than those destitute of them. I have found, that detaching the air vesicles from a plant, and placing it in

* Osbeck mentions, that, if prepared with vinegar, it furnishes an excellent pickle; and Rumphius, according to Mr. Turner, relates, that, in the East, salads are made of it, as well as other *Algæ*. It is also eaten in Chili.—*Greville's Algæ Britannica*, 8vo. 1830, p. 2.

shallow water, it sunk, but where the depth of water was great, the bulk of water was in itself sufficient to keep the weed afloat ; the use of the air vesicles is most probably intended for the purpose of bringing some portion of the plant in contact with atmospheric air, or by keeping the plant to the surface of the water, to receive a greater benefit from air and light, or to prevent the young shoots or other parts of the plant being injured by the violent action of the waves. We find in the *fucus buccinalis*, or trumpet weed of the Cape, that stem is hollow, accommodating itself in length to the depth of water in which it grows ; is attached to the ground by ramified roots ; the stem terminating in a crown of broad leaves expanded on the surface of the water, and kept in that situation by a broad air bladder, in which the stem terminates under the crown ; it may aid the plant also in maintaining itself against the force of the waves in the exposed situations in which it is usually found.

Air-bladders are not confined to sea weeds ; several plants growing in fresh water are similarly provided. Of these, the *Jussiaea tenella*, found in the rivers of Amboyna, is a remarkable example. Along its stalk are many large oval tubercles, full of air, and each of these is compounded of

many others, so that the injury which the plant might sustain from foreign bodies striking against it and breaking the bladders, is obviated.*

On the 8th of April we were in latitude $31^{\circ} 34'$ north, longitude $41^{\circ} 27'$ west. It has been remarked, during the time the Crowned pigeons have been on board the ship, that they do not eat for five days, or a week, and then recommence eating so much, that the man attending on the poultry can hardly supply them with sufficient: they continue thus to eat for the space of a fortnight, or more, and then cease for a certain period, as I have just before observed. At first this was supposed very naturally to proceed from illness; subsequent observation, however, decided that it did not originate in such a cause. They have not now eaten for three days, the paddy placed in their trough still remaining untouched. The birds have a healthy appearance in plumage and general looks, and are, in as excellent, if not better condition, than when they first came on board the ship at Singapore. Paddy is the only food given them, as they prefer it to all other kinds of grain that have been tried.

* *Wide Liabillardiere's Voyages*, vol. ii. p. 634.

I am not aware of the differences of plumage in the males and females of these birds, but am inclined to consider these male and female birds, from one running after the other in sportive wooing, and the mournful, cooing noise, proceeding from only one of them. They are shy and timid, fluttering about very much when any one comes near, or attempts to touch them; they even show this shyness towards the man who is accustomed daily to supply them with food.

April 16th.—During the late prevailing strong breezes and gales, with damp and rainy weather, the birds have appeared well, only occasionally fluttering by the heavy lurches of the vessel: that has been prevented, for the most part, by bagging being placed underneath their feet. The range of temperature has not been lower than 55° ; medium 60 , and maximum 64° .

April 18th.—The pigeons, although they have their feathers ruffled, and mope, from the change of temperature and wet weather, do not appear to suffer in health: they move often about the coop, and eat as usual.

April 23rd.—In latitude $49^{\circ}35'$ north, longitude $14^{\circ}8'$ west: thermometer 53° to 55° . I had the misfortune to lose another of the Crowned pigeons. Yesterday the bird seemed healthy, the

eyes brilliant, and plumage unruffled ; but this morning it was found dead ; so sudden does death occur, without any previous indication being given, among the feathered tribe.

From the 8th to the 16th of April we had strong westerly winds and gales, coming on at first, from north-north-west, veering to south-west and south. On the 16th of April, we were in latitude $44^{\circ} 34'$ north, longitude $25^{\circ} 00'$ west.

Early on the morning of the 28th, a swallow (*Hirundo rustica*, Linn.) was seen flying about the ship ; and, having entered one of the stern cabin windows, was readily taken. It appeared quite exhausted, and made no efforts to escape, until, having been confined for a short period of time in one of the cabins, it flew out again on the door being opened, but was soon recaptured. It is probably the straggler of a flock migrating to the northward, as they are usually considered to arrive in England in April or May, earlier or later, according to the mildness of the season.

This bird may be considered to be detained on its passage by easterly winds, similarly to ourselves. It was in an excellent plump condition, although now, no doubt, tired and hungry. The little traveller is preserved alive, and per

mitted to fly about one of the cabins. It became in a short time after its capture, very tame, perching on the head of the person in whose cabin it had taken refuge, eating food also from the mouth. The following morning, however, it flew away.

In the evening several of the common swallow, (*Hirundo rustica*, Linn.) and also, from a specimen which I caught and examined, the martin (*Hirundo urbica*, Linn.) were flying about the ship, occasionally seeking refuge in the cuddy: they appeared strong on the wing, in excellent plumage, and plump condition. They no doubt formed part of a flock migrating to the British shores, where the latter are said to arrive about the 16th of April; but the computation of the time of their arrival cannot be mentioned with any degree of certainty. Now their passage has probably been retarded by the long prevalence of easterly winds; and the cold, rainy weather, may have caused the little emigrants to seek refuge on board the ship. From calculation at noon, we were in north latitude $50^{\circ} 14'$, north and west longitude $12^{\circ} 40'$.

The swallow is found an inhabitant of the tropical regions of the globe, visits the northern climates during the warm months of the year, and is regarded as the harbinger of summer;

emigrating, however, with its young, to a more congenial climate on the approach of winter. It is then that they are met with at sea, perching, in an exhausted condition, on the rigging and decks of ships. Being interrupted by adverse winds, they waver in their course, spent with famine and fatigue, until the ship affords them a temporary resting-place; from which, refreshed by a few hours' rest, they renew their flight. They are said to arrive in Africa about the commencement of October, having performed their fatiguing journey in the space of seven days.

During a passage from England to New South Wales, on the 27th of September, 1828, several of these birds alighted in an exhausted condition on the rigging and deck of the ship, and were readily captured. We were at that time in latitude 13° 40' north, and longitude 23° 12' west. They were the *Hirundo rustica*, of Linnaeus.

These birds emigrate from one tropical country to another; and during a passage from Manilla to Singapore, through the China sea, on the 20th of October, 1830, for several days a number of these birds were flying about the ship; and I am inclined to suppose, derived at that period sustenance from the flies which infested the ship, as

soon afterwards but few of those insects remained. In the evening they would roost on the rigging; and some even took refuge for the night in the chief officer's cabin, which opened upon the deck, and were again set at liberty in the morning. They became after a few days exhausted; several were found dead, and others became so tame from fatigue and hunger, as to be easily caught, and would afterwards remain perched on the hand, without making any effort to regain their liberty. These were also of the species *Hirundo rustica* of Linnæus, which is widely distributed over the globe. We first observed them in latitude $15^{\circ} 29'$ north, and longitude $117^{\circ} 40'$ east; and we lost them, most having perished, in latitude $9^{\circ} 30'$ north, longitude $110^{\circ} 45'$ east, having been about the ship for thirteen days.

The question that arises is, whether in the latter instances they were emigrating, or had been blown off the land by the westerly gales we had experienced since leaving Manilla Bay. It may be mentioned, that as we had at the same time numerous other land birds about the ship, the latter supposition is not improbable.

After having been detained for several days by easterly winds, on the 29th of April we had fair

breezes,—the swallows then departed, perhaps as glad as ourselves at having some chance of terminating a long voyage. We made the Scilly Islands on the 30th, and arrived at Gravesend on the 5th of May, 1834.

A P P E N D I X

APPENDIX.

THE COCOA-NUT TREE.

(*See Page 405, Vol. i.*)

“ The Indian’s nut alone
Is clothing, meat and trencher, drink and can,
Boat, cable, sail, and needle, all in one.”

OF all the trees, beautiful either in form, height, or the splendid colour of their flowers, so profusely scattered over the face of nature in tropical climes, perhaps none has excited more interest, both for its elegant and majestic growth, as well as for its utility, than this palm, producing fruit, shade, utensils, and numerous other articles, to supply the wants of mankind. These palms impart a grandeur to the tropical landscape ; their stems, towering to a great elevation, are crowned at the summit by elegant fronds of gigantic character ; they over-

top the more diminutive trees, and excite the admiration of the traveller by their elegant and novel appearance, decorating the sea-coasts of large continents, and waving their dark plumes over the insignificant coral-reefs. The cylindrical rough trunk* towers to an elevation of one hundred feet, and the terminating crown of feathered fronds gives to them an elegant appearance, more so when seen loaded with fruit in all its different stages, from the first bursting of the spathe displaying the delicate white fruit and minute flowers, to the huge, fully mature nut, in bunches of from twenty to thirty, or more, the ponderous burthen appearing to be suspended on a very fragile stalk.

The fecundity of the palms is surprising; a single spathe of the date is said to contain about twelve thousand male flowers; *Alfonsia amygdalina* has been computed to have two hundred and seven thousand in a spathe, or six hundred thousand upon a single individual, while every bunch of the Seje-palm of the Orinoco bears eight thousand fruit.† On the cocoa-palm, frequently two or three hundred nuts may be

* The fronds of the palms every year throw off those of the year preceding, and it is the bases of the old fronds that form the rough bark.

† Lindley's Nat. Syst. of Botany.

seen at one time, yielding an inexhaustible supply for the use of man at all seasons of the year.

This palm delights in, and grows with the greatest luxuriance in the vicinity of the sea, and is found in great perfection on the south and west coasts of Ceylon; (giving a beautiful appearance to those coasts;) those of Malabar and Coromandel, on the Maldivé and Laccadive Islands; those of Polynesia, where it adorns the small coral islands, as well as those of magnitude, glowing in all the brilliancy and beauty of tropical scenery. At Penang and Singapore I remarked these palms to be comparatively unproductive, and they are rarely seen cultivated to any extent.

The Singalese have a curious tradition regarding the original discovery of the cocoa-nut tree, by a prince of the interior of the island of Ceylon. About half-a-mile from Belligam, (a fishing hamlet on the southern coast of Ceylon, situated between the towns of Point de Galle and Matura, in about $80^{\circ} 20'$ east longitude, and $5^{\circ} 30'$ north latitude,) completely concealed from view, whether approached by land or sea, by the density of the cocoa-nut groves, is a large rock of granite, to the left-hand on the road to Galle, which at that particular spot is completely

overshadowed by umbrageous *Jack*,* *Kettule*,† and cocoa-nut trees, and which displays the gigantic representation of a former prince of the interior, called “Kottah Rajah,” to the attention of the traveller.

The figure, about sixteen or eighteen feet in height, is sculptured in the solid rock; and, according to the Singalese tradition, the original discovery of the cocoa-nut tree is attributed to a vision, which first communicated to this highly-favoured rajah a knowledge of that principal of all vegetable productions, which omnipotent wisdom and munificence has so liberally bestowed upon the sable portion of mankind.

A Singalese king, or sovereign prince, as the term “rajah” implies, of devout conduct and character, became suddenly afflicted with a cutaneous disease, which covered him with a white scaly substance from head to foot, to so great a degree as almost to deprive him of human appearance: so very rapidly did the loathsome distemper extend its malignant influence over the rajah’s person, that sacrifices were resorted to by his people, in the hope of thereby appeasing the anger of the supposed

* *Artocarpus integrifolia*, Linn.

† *Caryota urens*.

author of the rajah's sufferings, the Maha Yaka, or great demon.

The Kottah rajah (the *image* itself is now so styled) objected to assist in person at any such diabolical sacrifices, and however prejudiced his people were in the belief of their eventual efficacy, he himself preferred humbly to submit to the decrees of that superior power from whom alone the Maha Yaka could have derived dominion, if he really possessed any, over the destinies of mankind. At this period, the cocoa-nut tree was not known in the interior of Ceylon; and to this day its scarcity is remarked by every traveller who visits the interior of the late Kandyan territory.

The resigned, but suffering rajah, having, with all due humility, paid his accustomed devotions, and offered sweet-smelling flowers, according to the Budhoo religion, and repeated the Budha-Sarana,† fell into a sound sleep, which lasted for several days. During his

Generally of *Bignonia indica*, *Tabernaemontana*, *Jasminum odoratum*, and *zeylanicum* and *luteum*; *Polyanthes tuberosa*, *Nyctanthes arbor tristis*, *Michelia champaca*, *Nerium odoratissimum*, *Mimosa arabica*, and *Lawsonia inermis*.

† In worship of Budhoo, and acknowledgment of his being the Omniscient.

trance, he beheld a large expanse of water, which he tasted, and found it both salt and nauseous, although of a fine green* colour near, and blue in the distance; having on its margin immense groves of trees of a rare kind, such as he had never before seen; for, instead of branches in various directions, as other trees had in his country, a tuft of large leaves, as they then appeared to him to be, crowned the lofty summit of each individual tree, which, to an immense height, was totally divested of branches or foliage.—This tradition is believed by many eminent Tirinanses, or high priests, of Budhoo, who attach to it great antiquity.

The Kottah rajah, having awakened from his trance, felt his mind deeply impressed with the unusual nature of his dreams; but, in the natural excitement which the hope of his recovery encouraged, he renewed his oblations and prayers, believing that a display of omnipotent mercy would be the result. A Cobra de capello, the Naya of the Singalese, (*Coluber naja*, Linn.) and sacred snake of the Budhists, shortly afterwards approached, and, having expanded its spectacle-marked hood, raised its head a cubit above the ground, and observed the rajah

* A liberty is here taken with the tradition, blue and green being synonymous in Singalese, (Nil-pata.)

steadily for some moments ; after which, the animal, extending its blue forked tongue, and thrice bowing its head, lapped water from the leaf in which it had been reserved for the rajah's particular use. Having thrice repeated the draught, the animal, still keeping its eyes fixed on the rajah, gradually retired to the jungle. This was conviction itself of Budhoo's* favour.

Again the prince felt his eyelids grow weary ; but, in his then state of disease, he had determined to occupy no place of shelter save that which the shady Bogaha, (*Ficus religiosa*,) the tree under which he reposed, afforded him. No sooner had sleep a second time exerted its magic influence, than his former vision recurred, with the additional appearance of an aged man, whose face bore the appearance of the moon in all its splendour. It was *Maha Sudona*, the father of the god Budhoo,† who stood before the astounded rajah, and thus accosted him :—

“ From ignorance of the sacredness of the ground over which the god's favourite tree casts

* Supposed to be derived from a Tamul word, *bodhi*, which signifies *wisdom*. The present object of Singalese worship is the fourth Budhoo, called Goutama Budha Arkabandoo, or descendant from the sun.

† Considered by many learned Indians an incarnation of Vishnu, and his religion to be founded on that of Brahma.

its honoured shade, thou once didst omit the usual respect due to it from all created beings. Its deeply-pointed leaf distinguishes it above all other trees as sacred to Budhoo; and, under another tree of the same heavenly character thou now liest a mass of sores and ulcers, which the impurity of the red water within the large and small rivers of thy body, has, at the great deity's command, brought upon thee externally. But since the snake, the kind snake, the shelterer of the god Budhoo, when on earth, has thrice partaken of thy drink, thou wilt derive health and long life by obeying the commands which I now bear thee. In that direction (pointing towards the south) lies thy remedy. One hundred hours' journey will bring thee to those trees, which thou shalt see in reality, and taste their fruits to thy benefit. But as on the top only it is produced, by fire it must be obtained. The inside, partly of transparent liquid, partly of innocent food, must be thy *sole* diet, till thrice the Great Moon (Maha Handah) has given and refused her light. Disease will, at the expiration of that time, leave thee; thou wilt be clean again; but forget not, with the restoration of thy health, (the Singalese language renders it, 'the skin of thy flesh, renewed by the fountains of thy life, being made red again,') sacrifices of sweet flowers and fruits,

with much thanksgiving; to that great Brahma of all Brahmas,* to whom all other gods, and even demons, pay homage, through whose mercy and forgiveness of thy neglect and transgressions thy bodily vigour will have been restored, and the days of thy enjoyment in the splendour of the mighty and flaming chief ruler† of the moon prolonged.”

A sound, as of ten thousand tom-toms,‡ struck at once seemed to the delighted rajah a manifestation of the messenger's authority. It reverberated on his ear for hours together, after he had awakened from his second trance; and, impressed with a belief that the invisible powers had thus intimated a disposition to take him under their especial protection, and that, consequently, it was his bounden duty to obey commands so mysteriously conveyed, the rajah, placing the palms of his hands across his forehead, and bending to the ground, prayed for strength to act in obedience to the Ossah Pollah

* Brahmatā-Brahma, a name of Budhoo.

† Anadewara, also a name of Budhoo.

‡ Native drums; of which there are four kinds, generally made of jack-wood, and covered with deer-skin, from which the hair has been previously removed. It is laid on in a wet state, and dried in the sun.

Dewyo, the ruler and creator of all gods and demons, and of the flat world itself.

Having summoned his immediate followers from the various resting-places, which they had constructed with the branches and leaves of the neighbouring trees, by way of temporary shelter, the rajah repeated to them the prophetic words of the divine messenger; and, having gone through the ceremony of making a propitiatory offering under the Bogaha-tree, of fruits, Betel-leaves, (*Piper-betel*,) and flowers of sweet perfume, he, attended by his retinue, proceeded in a direct course through rivers and forests, and over mountains immense, to the southward, as directed by the Maha Sudona.

The one hundred hours' journey having been miraculously performed without any perceptible fatigue, either to himself or attendants, the anxiously anticipated view of that boundless expanse of blue water, which, in his dream, had appeared to him so beautiful, yet nauseous to the taste, and on its margin immense groves of trees, with tufts of leaves, (for the first time plainly perceived to be large branches,) as his visions had foretold, gratified his astonished, but delighted sight. Beneath the branches, sheltered from the vertical sun, hung large clusters

of fruit, much larger than he had ever seen in his own country of the interior, of green, yellow, and red* colours, and others apparently black.

There were no human beings on the coast ; but wild beasts, such as leopards, bears, sloths, and elephants innumerable. To climb the cocoa-nut tree, (the promised source of health,) was then unknown, and considered beyond the power of mortal man ; but, as fire had been pointed out as the means of obtaining its fruit, the rajah's followers procured two dry sticks, which having prepared, by pointing the end of one, and making a small hole in the middle of the other, for the reception of the pointed stick, friction produced fire, which was immediately increased, by the application of dried leaves to the emitted flame.

Scarcely had an hour elapsed, after the fire had been kindled that was to fell the pride of the coast and the most valuable boon of nature to the Indian world, ere, with a tremendous crash, it became prostrate upon the earth, whence, from its capacious and verdant crest, crept out creatures innumerable : large blue scorpions, brown and yellow centipedes, snakes of various hues, from the Polonga to the less dreadful rat-snake ;

* The Singalese language has no signification for brown, reddish, orange-coloured, scarlet, or pink, which are all expressed by the monosyllable " rat," red.

blue, black, green, and yellow beetles ; tarantulas, and other spiders, of all sorts and sizes and colours ; whilst, running from branch to branch, the detested rat seemed to imitate the motions and equal in agility the beautiful tri-striped squirrel, or lina of this paradise, (as the glad rajah and his suite at that time considered it,) of the universe.

The novel fruit was, at first with some difficulty, opened ; but the rajah's superstitions were more powerful than even the effects of hunger itself. With awe, he approached the beach, over which wave followed wave in quick succession ; whilst the surf beat with violence against the roots of those stately trees, which seemed to thrive best where no other tree of any utility whatever could survive even a temporary sprinkling from the briny spray.

Mute with astonishment at the vast expanse of ocean, which he then for the first time approached, the rajah bent to taste the liquid aliment. It was as his vision prognosticated. Again his wonder was increased ; but his faith had kept pace with it, in the full belief, that " ere the great moon had thrice given and refused her light," he would be cleansed from his foul distemper ; and his disrespectful demeanor under the sacred Bogaha, which had originally drawn

down upon him the anger of the "All-seeing,"* be forgiven.

Having once commenced, the rajah and his followers continued to live on the prescribed diet. The former, in obedience to the commands of Budhoo, by the Maha Sudona; and the latter, from necessity, there being none of their accustomed fruits, rice, or roots to be met with so near the ocean. They found the water† within the nuts sweet and delicious, and pure as crystal itself, (of which mineral their country‡ produced abundant varieties,) whilst the fleshy part of it was a cooling and satisfying food.

The prescribed time rolled on; and day after day convinced the delighted followers of their suffering prince, that truth came from above. The rajah gradually lost the white and scaly skin, which had enveloped him like the armour of the great ant-eater of the interior;‡ whilst the glow of heat which pervaded his extremities, convinced him of the near approach of his promised recovery. Thankful to his great preserver, he omitted not to perform the duties which in his visions had been dictated to him; and on the first stone, which appeared durable and be-

* "Samanta-chacksa," covered with eyes.^d

† The green cocoa-nut, called in Singalese, Koroomba.

‡ Probably the Manis, commonly called Negombo Devil.

yond the reach of the sea, in token of his gratitude, he, with the assistance of his followers, carved on the granite rock ("which you now see," is added by the narrator) a gigantic statue of himself; remarking, that its great height would show the wonderful recovery he had experienced, being a very little man in stature; "for he had risen, by the blessing of the god of all gods, to an undeserved height of happiness and bodily vigour; the memorial of which would thus be handed down to millions yet unborn."

Numerous families, from the high* country of the interior, soon afterwards emigrated to the sea coast; for it had become an imperious duty on the part of the rajah, on whom a miraculous cure had been so unexpectedly wrought by the fruit of the cocoa-nut tree, to give publicity to the circumstances which originally introduced to him and his followers a knowledge of that splendid production; whilst the conviction of its transcendent utility pointed out its propagation as a never-failing source of individual advantage and of progressive national prosperity.

This useful tree is of the Monoecious class, order Hexandria, and is the *Cocos† nucifera* of

* "Kandi," high, lofty, mountainous.

† The *Cocos* is a name said to be taken from the Portu-

Linneus : it is called Haari by the Tahitans, Polgaha by the Singalese. The varieties of the cocoa-nut are numerous at Tahiti, (one of the Society Islands.) I am acquainted with six, each having a distinct appellation by the natives. At Ceylon, five varieties are indigenous ; but are seldom, if ever, found in the same plantation, except it be in the vicinity of a Budhoo temple of some importance. The first, or King cocoa-nut may be well known to those who have resided in Ceylon : its bright orange colour, and somewhat oval shape, cannot fail to attract notice, and is usually presented to respectable Europeans, by the Modeliars, or by the priests, as a compliment to those whose curiosity may have induced a visit to the shrine of Budhoo. This variety is the Tembili of the Singalese, and they have of it three sub-varieties. The second is of a similar colour to the preceding, but of a more spherical shape. The third is of a pale yellow, and rather heart-shaped : it is the *Nawasi*, or edible husk, and has the peculiar quality, that after the epidermis has been removed, the inner rind turns to a pale red, and is edible. The fourth is the common cocoa-nut, which is in general use, and the one most known. The

guese coco, or coquin, the three holes at the end of the cocoa-nut shell, giving it some resemblance to a monkey's head.

fifth is a species of *Maldivia*, or dwarf cocoa-nut, about the size of a turkey's egg, which being rare, is more esteemed as a curiosity than for any peculiar good quality it possesses.

The elevation* this tree attains is from sixty to one hundred feet, and a diameter of one or two feet; its cylindrical stem, crowned on the summit with numerous waving, plummy branches, has a splendid effect, and forms an elegant object of intertropical scenery: it is seen on the arid, sandy shores, with its roots laved by the surges, as well as in the rich valleys, overshadowing the huts of the natives; but when this valuable tree is found growing inland, they are inferior in size to those on the sea-shore and about the dwellings of natives. The Singalese have a saying, that cocoa-nut trees do not thrive unless "you walk amongst them, and talk amongst them."†

* This palm is rarely, or never, seen growing straight; it has usually, when full, or nearly full, grown, an inclination in one direction or another.

† The cocoa-nut tree, on the sea-shore, is certainly larger and more productive than in the interior of Ceylon. In the former situation it frequently grows to the height of one hundred feet. Its flourishing most in this situation, and close to the dwellings of the natives, is probably connected with the circumstance, that its leaves, in a healthy state, contain a very large portion of saline matter. The Singalese are well aware of this: the washermen burn its leaves for the sake of

The cocoa-nuts intended for planting are fully ripe, and being taken down, are laid aside for several days: they are then taken, and being partially covered with earth, they are left for two or three months; in which time a white, spongy, sweet substance forms in the interior of the nut; after which the white shoot (the rudiment of the future tree) emerges from one of the three holes, (which are seen at one end of the nut, wisely provided by nature for this purpose,) pierces the nut, and rising to the height of a few inches, the foliaceous rudiments are distinctly to be perceived;* the radicles emerge from the other two orifices, in a direction opposite to the shoot, and penetrate the ground. In the course of four or five months, the plant will have attained the height of sixteen or eighteen inches, and have thrown out three or four foliaceous branches. The Singalese plant their *topes*,† or its alkaline ashes; and it is a common practice, in planting a cocoa-nut, to put a little salt into the pit.”—*Davy's Ceylon*, 4to. p. 355.

* The natives of Tonga give the cocoa-nut, when in the act of germinating, the same appellation as the brain —“Uto.”

† A ludicrous mistake, I recollect, once occurred respecting this word in one of the missionary letters sent to England; it was mentioned that they preached to the natives in *topes* of cocoa-nut trees: this, when it appeared in one of the

groves, with great regularity, the distance observed between the plants being twelve or eighteen feet. The cocoa-nuts are never planted until they have sprouted, and the young plant even attained the elevation of three feet or more ; the natives, therefore, usually keep the nuts intended for planting about their houses, until they are considered to be of growth sufficient to plant. At the Island of Rotúma, South Pacific Ocean, I have seen them ranged along in great numbers before the huts, the young plants growing luxuriantly from the nuts, but as yet unplanted. At this island the cocoa-nut tree is planted abundantly, and covers the island profusely, from the margin of the beach to the summits of the hills, giving a beautiful appearance to this small but fertile island. In time of sickness the natives often make use of the young cocoa-nut trees as offerings to the supposed offended spirits.

For the first three or four years, the young plants are fenced, to protect them from the depredations of hogs, &c. to whom the young, delicate leaves would form a tempting morsel. In five or six years, (if the tree is planted in a healthy situation,) the tree will have attained an

missionary journals, was printed thus:—"they preached to the natives *on tops* of cocoa-nut trees !!"

elevation, probably, of eight feet; and at that time the enormous size of its fronds are more conspicuous than when the tree has obtained its full elevation: it then usually commences to bear fruit, and continues for sixty years to yield it in abundance; but beyond that period, the produce begins decreasing, until it ceases altogether.

The wood of this tree is used for various purposes: among the Polynesians it is used for spears, rafters for their huts, fences &c.; and it also makes excellent charcoal. When the tree has ceased to bear, it is most valuable, and is imported into the European markets under the name of *porcupine wood*. Among the Singalese it is used for rafters, laths, shingles, chairs, ladies' work-boxes, &c.; but during the period of its most abundant bearing, (considered to be between ten and thirty-five years' growth,) the heart is of so soft and spongy a nature, that it is merely used for fences, water-pipes, &c.

The fronds are from eighteen to twenty feet long, and composed of a strong, tough stalk, diminishing from the base, and has a number of narrow leaflets* ranged on each side. The Sin-

* The midribs of the leaves, tied together, form good brooms for the decks of ships.

Formerly it was not unusual for the Tahitan females to

galese split the fronds in halves, and plait the leaflets neatly, so as to make excellent baskets ; and, under the denomination of *cadjans*, form the usual covering of their huts, as well as the European bungalows. Many of the natives' huts are constructed there, as well as in Polynesia, almost entirely of materials derived from the cocoa-nut tree.

The Tahitans also plait the branches (*niau*) for screens, or a covering for the floors ; for similar purposes, and also as a thatch for the huts, it is also used by the natives of the islands of Rotuma, Tongatabu,* and other of the Polynesian islands. The Tahitans call these screens *paua*, and they also manufacture neat baskets, one kind of which is called *arairi*, and another kind of basket called *oini* ; a shade for their eyes, called *tapo niau*, is made of the plaited leaves, and placed by the natives over the eyes

produce abortion, by using a midrib of the cocoa-nut leaflets as an instrument for the purpose ; but this crime is now, I am happy to say, very rare indeed, if practised at all, in the present state of that splendid island.

* Baula, branches of cocoa-nut tree plaited, with which the houses are thatched ; they will last two or three years. The matting for the floors, of similar plaited fronds, is called *Takapau*, or rather a coarse kind of matting made from the young leaves, only used for covering the floors of the houses ; and the screens *Tatau*, at Tonga Islands. .

to protect them from the unpleasant solar reflection from their sandy roads and beaches; the yellow leaves (*rau-para*) are preferred for the purpose, their colour being much admired. The leaves were used in many of the religious ceremonies of the Tahitans, and was also an emblem of authority; it was sent by the chief to his dependents when any requisition was made: through the cocoa-nut leaf, tied to the sacrifice, the god was supposed to enter; and by the same road the evil spirits, who, it was imagined, tormented those affected with diseases, were driven out. Bunches or strings of the leaflets were also suspended in the temple on certain occasions, and answered the same purpose as beads in Roman Catholic worship, reminding the priest, or the worshipper, of the order of his prayers.*

The heart, or very young foliaceous fronds of this tree, is called the cabbage, which is an excellent vegetable, either cooked or dressed, in stews, hashes, or ragouts.† The Singalese use

* Ellis, vol. i. p. 52.

† The Singalese used the white young leaves in forming ornaments, in a tasteful and elegant manner peculiar to themselves, on the occasion of any festival, decorating arches, &c., in various picturesque forms of crowns, flowers, &c. &c.

the dried fronds as torches, both for themselves during the dark nights, or to carry before the carriages and palanquins of Europeans ; they also use the spathe for a similar purpose, as well as for fuel ; and at Rotuma and other Polynesian islands it is also adopted for a like purpose. At Tongatabu (one of the Friendly Islands) combs are made by the women of the midrib of the leaflets of the cocoa-nut tree, the upper part being beautifully worked with the fibre of the husk of the cocoa-nut, or Bulu ; these combs, from their neat and ornamental appearance, were in great requisition during the time I visited that interesting island, and all the women were busily employed during the stay of the ship in making these combs, which they readily exchanged with the Papalangi* (foreign) officers and crew for trifling articles. The combs were stained by the bark of the Koka-tree, of a dark reddish colour, intended as a rude imitation of tortoiseshell.

There is one portion of this valuable tree which attracts much the attention of the observer,—it is a kind of net-work ; when very young it is delicate, beautifully white, and

* Papalangi was applied to any thing foreign ; we were Papalangis ; our cloth was Gnattoo papalangi ; our rum Kava papalangi, &c.

transparent, and is seen at the bases of the young fronds ; but as the frond attains maturity, this natural matting becomes coarser and tough, and changes to a brown colour ;* it may be stripped off the tree in large pieces, which are used in Ceylon as strainers, particularly for the toddy, which is usually full of impurities when recently taken from the tree, as its sweetness attracts insects innumerable. In most countries which I have visited, where this valuable tree is produced, this portion of it is used for a similar purpose. At the island of Tahiti (Otaheite) it is called *Aa* ; and besides being used as sieves for straining arrow-root, cocoa-nut oil, &c., the natives, when engaged in such occupations as

* There is a kind of seam along the centre, exactly under the stem of the leaf, from both sides of which long and tough fibres, about the size of a bristle, regularly diverge in an oblique direction ; sometimes there appear to be two layers of fibres, which cross each other, and the whole is cemented with a still finer, fibrous, and adhesive substance. The length and evenness of the threads, or fibres, the regular manner in which they cross each other at oblique angles, the extent of surface, and the thickness of the piece, corresponding with that of coarse cotton cloth, the singular manner in which the fibres are attached to each other, cause this curious substance, woven in the loom of nature, to present to the eye a remarkable resemblance to cloth spun and woven by human ingenuity.—*Ellis*, vol. i. p. 53.

digging, fishing, &c., in order to save their bark cloth, would join several portions of this net-work together, and having a hole in the centre, in a manner similar to their mat-garment, called Tiabuta, wear it as an article of apparel, merely for the time in which they may be engaged in those occupations. It is certainly a garment, neither to be admired for its flexibility or firmness, but better calculated for fishermen, or those occupied in the water, as it will not be destroyed by wet, whereas their bark cloth would be utterly destroyed in the water, its substance resembling paper, both in strength and appearance.*

This fibrous net-work must also act as a security to the huge fronds, against the violence of the winds; and a valuable precaution, by which the sudden fall of the branch is prevented, which otherwise might endanger the lives of those passing under the trees; it is not uncommon to see the dead branches hanging from the trees perfectly dry, attached to the trunk only by this tenacious substance, and even then it requires no little muscular exertion to bring them down.

When a large bunch of the fruit is seen pending from, apparently, so fragile a stalk, it seems as if it were an impossibility that it could sup-

* This substance is also used for small bags.

port such a cluster ; from twelve to twenty large nuts, besides several small, unproductive nuts, may be seen on each bunch, and in good situations the tree will admit of the fruit being gathered four or five times in the course of the year. The state in which the fruit is most used as an article of food, both meat and drink, is the green or young cocoa-nut, (Oua of the Tahitans, Koroomba of the Singalese,) at which time it yields an abundance of a delicious, cooling beverage, to which, sometimes, Madeira wine, brandy, &c. is added. The water, beautifully clear, has a sweetness, with a slight degree of astringency which renders it very agreeable ; this liquid has been erroneously considered by most persons as injurious, producing a predisposition to dropsical complaints, and has been considered among the Tahitans one of the exciting causes of that prevalent disease amongst them termed *féfé* or *elephantiasis* ; but I have recommended and adopted this cooling beverage during my frequent and long visits to intertropical countries, and have always found it the most cooling and refreshing beverage during my botanical and other excursions ; but when an immoderate quantity is drunk, I have known a slight degree of strangury produced by it. The ladies, however, who may fear taking it

internally, are informed that to the water of the green cocoa-nut is ascribed that inestimable property, to them, of clearing the face of all wrinkles and imperfections whatever, and imparting to it the rosy tints of youthful days !

In Ceylon, house-plasterers use the water of the green cocoa-nut, to which they attribute an adhesive quality in their white and other washes, in which Chunam* forms a chief ingredient for the walls of houses, &c. &c. ; and the shells of the green cocoa-nut,† fixed on stakes, are used as illumination lamps for roads, trees, &c. The pulp in the interior of the young nut is very delicate, easily removed from the shell with a spoon, and may very well be named a vegetable *blanc mange* ; in this state it is called *niaa* by the Tahitans, who use it as well as the natives of other of the Polynesian Islands, in several made dishes. After the fruit is suffered to remain a short time longer, and the pulp becomes firmer, the Tahitans change the name to *Omato*, and the fully ripe nut is called *Opaa* ; in this state it is sometimes but seldom eaten, being used principally for making oil, and contains a

* Lime prepared from burnt shells and coral.

† The shell of the Oua, or young cocoa-nut, is said to be used medicinally by the Tahitans.

small quantity of oily milk ; it is in this state the nuts are seen and sold in England. In Ceylon, when the nut is fully ripe, it is denominated by the Singalese *Pol*, or *Curry cocoa-nut*, the kernel of which is reduced to a very small size by an instrument called *Hiromane* ; (a circle of notched iron fastened to the raised end of a piece of wood ;) the kernel thus reduced is placed in a cloth, and water being poured on it, a white juice, which may with propriety be termed “cocoa-nut milk,” is extracted by pressure, and used invariably, either with or without the grated kernel, in their various curries and mulligatawnies.

I have never met with the water contained in a cocoa-nut of a brackish taste, as has been asserted, although the tree from which it had been produced had its roots laved by the sprays of the ocean. Mr. Finlayson* says, respecting some plantations of cocoa-nut trees, which surrounded a village situated on Pulo Condore, at the extremity of a plain, that “although they grow in great abundance, they are rather stunted in the stem, and their fruit, as well as the fluid it contains, has a peculiar and rather bitter taste.”

The shells of the cocoa-nut, when fully ripe;

* Mission to Siam, page 290.

are of a tolerable thickness, and great hardness ; they are cut transversely, scraped, polished, and mounted on silver, being edged also with the same metal, and are preserved as goblets, more for curiosity than utility ; but the shell is also used for cups, (elegantly carved,) lamps, ladles, skimmers, spoons, &c. ; they are used by the Polynesians, as well as other natives, entire, for containing their water, having two holes on the summit. The interior of the nut is extracted without breaking the shell, by filling it with salt-water, after which it is buried for some time in the sand, when the inside pulp becomes decayed, and the shell is then well washed out. The largest nuts are chosen for the purpose, and are often seen highly polished, and of a fine black colour. The cups of the natives are usually made of sections of the cocoa-nut in that stage of ripeness, when they are denominated by the Tahitans *Omutu* ; they are then scraped so thin as to be nearly transparent, and are of a light-brown colour. The shells will make good lamp-black, and, reduced to charcoal and pulverized, also an excellent dentifrice.

The flowers are insignificant when the magnitude of the tree is considered, and are inclosed in a thick, tough spathe, which, when either opened artificially, or when seen just expanding

naturally, have a beautiful milk-white appearance. The Tahitans call the flower *Tiari*, a name applied generally to all flowers; and the spathe is denominated *Pa tiari*; *Pa* signifying a shell or any thing hard, sometimes applied to the shell of the cocoa-nut; and the spathe is thus considered the shell of the flowers. The first appearance of these flowers on a tree of moderate elevation (when they are well seen) has an elegant effect—the cluster erect, drooping, and delicately white. The taste of the flowers is most powerfully astringent, and in Ceylon is used medicinally in various debilitating diseases, more particularly that distressing malady in tropical climates—gonorrhœa. The mode in which it is administered is the expressed juice of the flower mixed with new milk, and taken in small quantities not exceeding a wine-glass full, but at regular periods, affords almost immediate temporary relief, and, if persevered in, effectual cure. It is from these flower spathes, before the flowers have yet expanded, that the delicious beverage, known to Europeans as toddy or palm-wine is made;* it is called by the Singalese *Ra*, and the Hindoo Portuguese *Soura*, but is unknown to the natives of Polynesia,

* The palm vine of Africa is procured in a similar manner, but I believe from other species of palms.

although at some of the islands Europeans, who have visited those parts of India where they had seen the process of collecting it, had commenced instructing the natives, who were delighted to have a beverage possessing the stimulus of their favourite rum.

To procure the toddy * the spathe is tied with stripes of the milk-white leaves of the very young branches, (which are much tougher and stronger than the old ones,) to prevent its expansion ; it is cut a little transversely from the top, and beaten either with the handle of the toddy knife or a small piece of ebony or iron wood ; this process having been continued morning and evening (at dawn of day, and just as the sun declines below the horizon) for five or six successive days, the under part of the spathe is taken off, so as to permit of its being gradually bent, when the Chandos or toddy-drawers, for the purpose of keeping it in that position, attach it to some neighbouring branch. After a farther

* Formerly the toddy was supposed to be the sap of the tree drawn from the branches. "The wine issues from the top of the tree, and is procured thus :—They cut a *branch*, binding it hard, and hang an earthen pot under the cut end, which they empty every morning and evening."—*Fitch's Journey to India Overland, in 1583.* (Kerr's Collection of Voyages, vol. vii. p. 476.)

period of five days an earthen chatty or calabash is hung to the spathe, so as to receive the toddy that exudes, which is collected every morning and evening, and the spathe cut a little every day : the quantity collected varies much.

The toddy should be drunk at sun-rise, when it is a most delicious drink, having a slightly stimulating effect, and acting as a gentle aperient, a remedy admirably adapted for constipated habits, particularly in those of delicate constitutions. The Singalese prefer it after fermentation has taken place, and with it they often intoxicate themselves. Fermentation takes place in a few hours after the toddy has been collected, and is used by the bakers as yeast, the bread made with it being remarkably light. Toddy is seldom or never used by Europeans during the rainy season, being then regarded highly unwholesome. I have often found the toddy in Ceylon, and a refreshing bath before or just on the eve of sun-rise, cooling, and it braces one up to go through the heat of the day in that sultry, debilitating climate.

The spirit known in India by the name of *arrack*, or *rack*, is in several parts distilled from rice ; but in Ceylon, where this spirit is named Pol, wakéré, it is distilled from toddy after it has undergone fermentation and become

quite sour. One hundred gallons of toddy, it is stated, will produce, by distillation, twenty-five of arrack. Like all other spirits, when new, it is regarded injurious to the constitution, but when old, very wholesome. It is a favourite spirit among the drinkers of that far-famed English beverage, named punch.

Toddy, besides the foregoing uses, makes excellent vinegar,* &c. The toddy-drawers are a separate caste in Ceylon, called Chandos: almost all the families of this class reside in the neighbourhood of the sea-coast, where the trees grow in the greatest luxuriance and abundance, the whole line of coast between Point de Galle and Colombo being thickly planted with them; and the topes or groves are let at a stipulated sum of rix-dollars by the month; and it is also not uncommon for one or two families or more to have a share in a single tree, affording them

* The vinegar is thus prepared:—The toddy is collected in dry weather, put into jars, and well covered. After a month the contents are strained, and replaced in the same jars, with the addition of a little Chili pepper, (*Capsicum frutescens*,) commonly called bird-pepper; a small piece of Ghor-kah, (fruit of the gamboge tree,) the red sort of which is to be preferred, being most acid; and the pod of the horse-radish tree (*Hyperanthera moringa*). At the expiration of a month or five weeks it becomes very excellent vinegar.

sufficient for their favourite and universal food, the currie.

Besides vinegar, arrack, &c., the toddy yields abundance of jaggery or sugar. The toddy, being collected in a calabash, as before mentioned, in which a few pieces of the bark of the Allghas (*Hellenia Allughas*, Linn.) had been placed, a supply of sweet toddy is procured mornings and evenings; but particular care is required that the vessels be regularly changed, and that none are employed unless they have been well cleaned and dried. Eight gallons of sweet toddy, boiled over a slow fire, yield two gallons of a very luscious liquid, called Penni, or honey, or jaggery, or sugar-water; which quantity, being again boiled, a species of coarse brown sugar, called jaggery, which is formed into round cakes, and dried in the smoke of the huts; and, in order to preserve it free from humidity, each cake of jaggery is tied up in pieces of dried banana leaves, separately, and kept in smoky places, unless required for family use or the market. Jaggery is exported from Ceylon to various parts of India. In the interior a jaggery is drawn from the Kittul tree, the *Caryota urens* of Linnæus, and is considered to possess more saccharine properties than that produced from the *Cocos nucifera*. The jaggery-makers are

called in Ceylon *Hakuroos*, and are one of the subdivisions of the second in rank of the Singhalese castes.

The rind or husk of the cocoa-nut* is very fibrous, and, when ripe, is the Koya or Koir of commerce. It is prepared by being soaked for some months in water, washed, beaten to pieces, and then laid in the sun to dry. This being effected, it is again well beaten until the fibres are so separated as to allow of their being worked up like hemp, similar to which it is made up in ropes of any size from the smallest cord to the largest cable, but will not receive tar; it is rough to handle, and has not so neat an appearance about the rigging of shipping as that made from hemp, but surpasses the latter in lightness and elasticity, and even, it is said, durability; more so if wetted frequently by salt-water. From its elasticity it is valuable for cables, enabling a ship to ride easier than with a hemp or even chain cable. I was once on board a ship, in a severe gale, when chain and hemp cables gave way; and we, at last, most unexpectedly rode the gale out with a small coir-cable. Among the Polynesian islands, where this valuable tree rears its elegant crest, the coir is used in the

* From one inch to two inches in thickness.

manufacture of "sinnet," some of which is beautifully braided, and used by the natives for a variety of useful purposes, and at Tahiti is called Napé. At Tonga, (one of the Friendly Islands,) the natives dye the "sinnet," called *Kafa*, of various colours, using it in tying the rafters of the huts, &c. and it has a very ornamental appearance. The rope for their canvas is all manufactured from this substance. The husk, from which the fibrous substance has not been separated, is used in Ceylon in lieu of scrubbing-brushes for the floor; and also brooms, mats, and bags are manufactured from it. A quantity of coir cordage, such as cables, hawsers, &c., is exported annually from Ceylon to various parts of the globe. At the Pulowat Islands, (Carolina Group, South Pacific Ocean,) we purchased an abundance of cordage, an inch and one and a half inch in diameter, for merely pieces of iron hoop.*

From the trunk of the cocoa-nut tree the Tahitans extract a gummy substance, called by them Pia, pia; it possesses no fragrant property, but is used by the native females to spread over their hair, in the same manner that they are ac-

* The Tahitans do not use the coir in the manufacture of large ropes; for that purpose they use the bark of the *Hibiscus tiliaceus*, or Purau.

customed to use the viscid gum of the Bread-fruit tree.

Mariner mentions the charm at the Tonga islands of *Ta Niu*, which consists in spinning a cocoa-nut with the husk on, and judging, by the direction of the upper part when again at rest, of the object of inquiry, which is chiefly whether a sick person will recover : for this purpose, the nut being placed on the ground, a relation of the sick person determines that if the nut, when again at rest, points to such a quarter—the east for example—the sick man will recover ; he then prays aloud to the patron god of the family, that he will be pleased to direct the nut, so that it may indicate the truth. The nut being next spun, the result is attended to with confidence, at least with a full conviction that it will truly declare the intentions of the gods at the time.

The other occasions on which the spinning of a cocoa-nut is used, are chiefly for amusement, and then no prayer is made, and no degree of credit is attached to the result. The women often spin a cocoa-nut to decide some dispute at a game.

Another valuable production of the cocoa-nut is the oil, which is a valuable article of exportation from Ceylon, and other parts of India, Polynesia, &c. It is used in various articles of

domestic economy, besides being an excellent burning oil, (for which it is much admired, giving out neither smoke nor smell when burning, and having a clear bright flame,) it has since had an additional value, and more extended use at home, by the discovery of its capability of being manufactured into candles, rivalling wax or spermaceti, at the same time without being much higher in price than those of tallow. Soap has also been manufactured from it; and it is lavished by the Asiatics, Polynesians, and other intertropical natives, over their persons, and at Tongatabu, and other of the Polynesian islands, is used scented with sandal-wood and odoriferous flowers, giving a delightful fragrance to the flowing tresses and elegant persons of the dark beauties of those fascinating islands. In cold weather, (similar to most of the vegetable oils,) this oil becomes very hard, and requires to be melted before it can be used for burning.

The singular method of making the oil is very simple. The nut having been removed from the shell, is boiled in water for a short period; it is then pounded in a large mortar, taken out, and pressed. The *milk*, as it is called, is then boiled over a slow fire, when the oil floats on the top, which being skimmed off, and afterwards boiled by itself, two quarts of oil may be procured from

fourteen or fifteen cocoa-nuts. When fresh, the oil is used in cookery, and has an excellent flavour; the Singalese anoint their bodies with it after bathing, and invariably use it for the sake of giving a glossy and smooth appearance to the hair, and it is in great requisition by both sexes.

The remains of the cocoa-nut, from which the oil has been extracted, is called by the Singalese *Poonak*, and the best *Poonak* is obtained when the oil is extracted by pressure; it is an excellent food for pigs, poultry, &c. This substance is termed by the Tahitans *Ota*, and by the natives of Tongatabu *Efeniu*, and they use it also for fattening their pigs, poultry, &c. as also at the other Polynesian islands.

At Tahiti they procure the *Morü*, or oil from the nuts, by first grating the kernel, then depositing it in the hollow trunk of a tree, or some kind of hollow vessel, which is exposed to the sun during the day. After a few days have elapsed, the grated nut is heaped up in the trough or vessel, leaving a space between the heaps, the oil exuding drains into the hollow spaces, from whence it is collected by the natives into large bamboo canes; (containing each a gallon, or more;) in this way it is sold for shipping, or rather exchanged for axes, cotton, cloth, or rum; but the indolence of the natives pre-

vents its being so important an article of traffic as it might be in the South Seas.

Sometimes the Tahitans, after the oil ceases to collect in the vessel, put the kernel into a bag, and submit it to the action of pressure by a rude lever press ; but the oil thus obtained is considered inferior to that procured by the heat of the sun.

The Malabar method of extracting oil, is, by dividing the kernel into two equal parts, which are ranged on shelves made of laths of the Areka palm, or split bamboo, spaces being left between each lath of half an inch in width ; under them a charcoal fire is then made, and kept up for about two or three days, in order to dry them. After this process they are exposed to the sun on mats, and when thoroughly dried (then called *Koppera*) are placed in an oil press, or *Siccoor*. The Malabars have a caste of oil pressers, called the *Waany* caste.

At Colombo (island of Ceylon) there is a government steam-engine, which was erected in 1815, for the purpose of extracting the oil from the nut in much larger quantities, and with greater facility than before. Ceylon furnishes an abundance of cocoa-nut oil, much is used in the colony, and a large quantity is also exported to Europe. In Ceylon the average price is from thirteen to fifteen pence per gallon.

There are medicinal properties attributed to different parts of the cocoa-nut tree in Ceylon ; the root (the Tumu Haari of the natives of Tahiti) is used by the native doctors, small pieces of it being boiled with dried ginger and jaggery, and the decoction given at stated regular periods, and is considered highly efficacious in remittent and intermittent fevers. When this decoction is used as a gargle, it is mixed with the fresh oil of the nut, and generally affords considerable relief to the patient ; and has good effect, it is said, in cases where pustules have formed in the mouth or tonsils. The expressed juice of the leaves, mixed with the fresh oil of the nut, is considered a sovereign remedy in hemorrhoids. The expressed juice of the nut, used as an external application, mixed with new milk, is regarded by the Singalese as a good remedy for ophthalmic complaints.

It has been asserted, I believe by Lord Valentia, that cocoa-nut trees were injurious to the air in the places where they grew. Dr. Davy notices this in his excellent work on Ceylon, and says, “ Respecting the good effect of the wind from the sea, there can be no doubt ; and almost as little can be entertained respecting the ameliorating effect of cultivation, and the benefit derived from the shade of cultivated trees. Unfortunate would it be for the island, were the

notions of a noble traveller on this subject correct, or were his suggestions, founded on these notions, carried into execution ; who, supposing cocoa-nut trees to be injurious to the air, has recommended the destruction of those fine groves in the neighbourhood of Galle, with the idea of improving the wholesomeness of a place already remarkably wholesome. It was from notions similar to this, not long after we had possession of Trincomalie, that the majority of the cocoa-nut trees at that place were cut down, to the great detriment of the inhabitants, and to the deterioration rather than the improvement of the air. It is well established, and ought never to be forgotten, that it is not shade that is prejudicial in a hot climate ; that it is not vigorous healthy vegetation that is noxious ; but the accumulation of dead vegetable matter and its putrefaction ; and that whilst every means are taken to prevent the latter, too much encouragement cannot be given to promote the former."

It is interesting to see the natives ascend this lofty palm, to gather its fruit : they simply fasten a piece of bark round their feet, leaving between them a space of a few inches ; they then clasp the tree, and ascend with great agility. In throwing down the nuts, a whirling motion is usually

given to prevent their falling on the side, by which they may be burst.

The natives of the island of Tahiti, in one of their traditions, ascribe the origin of the cocoa-nut to its having grown from the head of a man : they have similar traditions for the origin of the bread-fruit, yams, &c. &c.

There are other species of the cocoas. The *C. butyracea*, a native of South America, the *C. guiniensis*, *aculeata*, *nypa*, &c. &c. all of which yield a fixed oil in use for various purposes.

Lionel Wafer, (1685,) when at the Island Co-coas, southern Pacific Ocean, (latitude 5° 15' north, attributes injurious effects to an indiscriminate use of the water of the cocoa-nut by some of his crew, by which that beverage was found unfit for a *jollification* ; for he says, “ Nor did we spare the cocoa-nuts, eating what we would, and drinking the milk ; carried several hundreds of them on board. Some or other of our men went ashore every day ; and one day, among the rest, being minded to make themselves very merry, they went ashore, and cut down a great many cocoa-trees, from which they gathered the fruit, and drew about twenty gallons of milk. Then they all sat down, and drank healths to the king, queen, &c. They drank an excessive quantity ; yet it did not end in drunkenness.

But, however, that sort of liquor had so chilled and benumbed their nerves, that they could neither go nor stand ; nor could they return on board the ship, without the help of those who had not been partakers in the frolic ; nor did they recover it under four or five days' time."

The continued use of the water contained in the young or green cocoa-nuts, is one of the causes attributed, (although I am inclined to consider it an erroneous opinion,) to produce the scrotal enlargements, &c. so often seen among natives of intertropical regions, more particularly those resident on the coast.

In a letter published in the Sydney Herald, of January 14th 1833, it is said, " The natives of Tahiti alone, make forty or fifty tons of cocoa-nut oil in the year, and all the other islands of the groups make an equal proportion. They sell it for calico, that costs about twopence-halfpenny per yard in England, and receive a fathom for four or five gallons. But the owners of vessels from this colony, (New South Wales,) find something more lucrative for their shipping than sending them to the islands, and the natives are discouraged at having no trade. The indigenous arrow-root remains undug, and the cocoa-nuts fall to the ground, and rot." That the quantity

of oil mentioned in the foregoing extract could be made, and even a much larger quantity, I do not doubt ; but that it would pay a vessel to proceed from Sydney to the islands, I have my doubts : indeed it has been tried, and found a losing speculation,—native indolence causing much delay to the vessel ; as, at one time they have a quantity of oil ready, at other times they are too indolent to manufacture any. Sending a vessel down, therefore, to the islands, is a risk, and as such it is well known to several of the Sydney merchants, although now and then good cargoes have been returned. With industry, however, those valuable and beautiful islands could produce abundance of cocoa-nut oil, sugar, arrow-root, and other articles of equal value ; but, under the present state of things, I have not very sanguine hopes.

The names of the Cocoa-nut, and portions of the trees in different countries, where it is found indigenous.

Cocoa-nut—Niu—Society, Friendly, and Fidge Sandwich Islands, Rótuma, Annatom, Tanna, and Immer, (New Hebrides group.) Society Islands Tumu haari, root of the cocoa-nut tree ; leaf of the cocoa-palm, Niau ; stalk in the centre

of the leaflet, Niu. (This part tied up in bundles, forms excellent brooms for ships' decks.) The fallen unripe fruit, Poniu ; cocoa-nut, nearly ripe, Omato ; unctious part of the kernel, Haro ; coagulated, or old milk of the nut, Utu ; outward covering of the nut, Iri Haari ; the hard shell, Abu Haari. At the Tonga Islands :—The plaited fronds, for thatching houses, &c., Baula ; husk of the cocoa-nut, Bulu ; a shell, husk, &c., Gnedji ; cocoa-nut shells, Gnedji niu ; a kind of cocoa-nut, the husk of which is eaten, Gnono-gnóno ; a very young cocoa-nut, Gnonu ; large cocoa-nut shells, for water, Hohoni ; a cup, or cocoa-nut shell for drinking out of, Ibu ; the oil, emulsion of the cocoa-nut, Loloi.

This palm is widely spread over tropical regions ; even a small islet just appearing above the surface of the “great waters,” is usually decorated by several, although yet uninhabited ; the tough, thick covering of the nut protects the germ whilst it floats on the briny wave, borne by the currents to a barren spot, on which it germinates, and, its fruit falling, again springs up, until a magnificent grove decorates the before-barren islet, delighting the eye, and affording refreshment to the wearied navigator. Ifelue Island, and numerous others

in the southern Pacific Ocean, are instances of this wonderful provision of nature.

At the Marquesas and Washington Islands, "the *Tahunas*, or priests, have a distinctive dress, consisting of a cap, formed from a cocoa-nut leaf. A part of the stem, six or eight inches in length, is placed perpendicularly over the forehead, and the leaflets still attached to it, are passed round the head, on each side, and neatly fastened together behind.

"Besides this article on the head, they wear a cape of the same material. In this the stem is split till within an inch or two of one of the ends: it is then passed round the neck, so that the extremities rest on each shoulder, and the separated ends are tied together. The ribs running through the leaflets being taken out, they hang over the chest and back.

"These articles are usually worn by them on ordinary occasions, and always when in discharge of the services connected with their office."*

At the same islands, one of their traditions gives an account of the introduction of the cocoa-nut tree. It is, "that a god, on a visit to them from an island which they call *Oatamaava*, finding them destitute of this important tree, fetched it to them in a stone canoe: the whole trans-

* Stewart's South Seas, 1829, 1830, p. 175.

action being described in a minute and equally incredible manner.”*

Among the articles brought off to the ships for barter at the Island of Tongatabu, were small calabashes, (fruit of *Melodinus scandens*,) filled with cocoa-nut oil perfumed by the sandal-wood, or various sweet-scented flowers, indigenous to the island. With this oil both the males and females anoint the upper parts of the body very profusely, giving a softness and glossiness to their dark-brown skins, and preventing the fervid rays of the sun from having any effect upon them, exposed as their naked bodies are to its influence.

The Papuas of New Guinea “in general wear a thin stuff that comes from the cocoa-nut tree, and resembles a coarse kind of cloth, tied forward round the middle, and up behind between the thighs.”†

The outer coarse fibres of the husk of the cocoa-nut, is made into a kind of rope, called Talie, api, or fire-rope, by the Javanese: it retains the fire for a long time, and is used in Batavia for lighting cigars.

The sinnet, made from the inner fibre of the husk of the cocoa-nut, can be procured in abun-

* Stewart's South Seas, 1829, 1830, p. 177.

† Forrest's Voyage to New Guinea, 4to. 1780, p. 96.

dance at the island of Tongatabu, and other islands in the Polynesian Archipelago, where it is used for canoes, binding the rafters of their houses, and a variety of other purposes, both ornamental and useful.

REMARKS
ON THE
MORBID APPETITE OF BREEDING EWES,
IN SEVERAL PARTS OF THE COLONY OF
NEW SOUTH WALES,
MORE PARTICULARLY OBSERVED ABOUT
THE MURRUMBIDGEE COUNTRY,
OCCASIONED BY EATING EARTH IMPREGNATED WITH SOME
ALKALINE SALTS.

(*See Page 220, Vol. i.*)

ON account of the morbid appetite existing in the sheep, which I am about to relate, their natural innocent dispositions are changed ; they become carnivorous and savage ; and it is difficult to drive them away from the pits in which earth impregnated with alkaline salts may be situated ; although, when taken to a *fresh run*, they proceed feeding as usual, until this salt earth is again discovered, when they became addicted to the unnatural custom of devouring their lambs. On discovering one of the pits, they rush to it

with the activity of deer, licking and gnawing the earth with avidity.

Among breeding-ewes, eating the earth was followed by their devouring the progeny of the other ewes, when brought forth ; and, on the shepherds endeavouring to save the lambs just born from their voracity, they would rush upon them, biting their trowsers, and making strenuous efforts to seize the lambs in the arms of the men.

The different places about the Murrumbidgee country, where this took place, was shown me during my visit to that part of the colony. One place was a black bog earth, on which marks of the tongues of the animals, at those places where they had been licking, could be distinctly seen ; the second place was similar to the first, and two others consisted of a reddish clay.

The situations were about limestone ranges ; and it has been remarked, that the water holes, as they are termed, (which when dry, are the places frequented by the sheep, for the purpose of licking and gnawing the earth,) after standing for three or four days, acquire a peculiar sickly, sweetish taste : and it is in these pools, after the evaporation of the water, that the earth is situated, so eagerly devoured by the breeding-ewes. When driven away, they are seen licking their

mouths, as if enjoying the delicious treat of which they had just partaken, making every endeavour to return : and men were required to be kept constantly on the watch, to prevent them ; but with every exertion it was almost impossible to keep them off, for one flock advanced as another was driven away, and the people are soon tired out.*

After eating the earth, they do not feed on the herbage in any regular manner ; they are restless, picking a bit of grass here and there, according to the statement of the shepherds, until, on the approach of evening, they feed in a more regular manner.

Sometimes six or eight ewes may be seen running to a particular spot on the pasturage, about the roots of clumps of grass, and sometimes those of fallen trees, licking and gnawing about the spot, as if it had a similar earth to that found in the *water holes*. They will burrow underneath the bank, to get the saline earth, at those places where it may be most moist.

This quality of the ground is supposed by the shepherds to be more prevalent about *limestone ranges* than any other geological

* It is said, if sheep have not bitter herbs in their pasturage, they will not thrive.

formation ; but I cannot consider this as satisfactorily proved. Although it has prevailed, for the most part, in places at which the limestone has formed the principal geological character, yet there are other parts of the country, where sheep have manifested a similar morbid appetite, when no limestone has existed. An ewe being missing about some limestone ranges, was seen coming out of a small cavern, in which she seemed to have found some of the saline earth, as she had a quantity of earth about the mouth ; and the place was afterwards much frequented by other ewes, until they were removed from the spot.

The sufferers in the loss of lambs and ewes from this morbid appetite of the latter, are principally Messrs. Dutton, O'Brien, Warby, Hume, Manton, &c., all having sheep-runs about the Murrumbidgee country.

Mr. Dutton addressed a letter to the government on the subject, with the intention of getting his grant of land, if possible, changed to some other part of the country. The following is an extract from his letter, which clearly points out the destructive effects produced among the flocks, the most valuable stock of the settler in this colony, and on which his prosperity greatly depends.

“ The disadvantages which I have thus to detail to you, arise from the novel disease with which the sheep are affected. It appeared after the first lambing, and within four months from the time of my occupation of the land in question. Its unaccountable and destructive nature renders my selection utterly useless. The nature of the disease, as far as I have yet remarked, is as follows : —The sheep, in the first place, devour the earth ravenously, the pasture being at the same time luxuriant, principally rib-grass, and other succulent herbs ; they become speedily emaciated, from this unnatural diet, more particularly as the lambing season advances, and when lambing commences : the other ewes surround the one lambing, and devour the young as they emerge from the mother. The lambs saved through the care of the shepherds become poverty stricken, from the low condition of the mothers, and generally die before they become a month old. Thus, instead of having twelve hundred lambs this season, as my regular increase, I do not count four hundred ; besides a very great decrease from mortality in the maiden sheep, originally purchased at high prices. The number of shepherds required being at the same time thrice beyond the proportion usual in the colony.”
—November 1832.

The result was, that as the regulations of the government could not permit the grant to be changed, Mr. D. was obliged to sell it as a cattle-station, and purchase land in a more favourable part of the colony for his flocks.

In December he removed them, as a temporary measure, to Yas Plains ; some of the ewes lambed after they had been removed, but the morbid appetite had ceased with the exciting cause, and the lambs were not attacked by the other ewes.

At the Murrumbidgee country I saw one of the little lambs, which had just been saved from the ravenous ewes, and had its tail bitten off before it was rescued. The circumstance was as follows, which shows the mode of attack :—The ewe was lambing, when six or eight others rushed towards her, but were prevented from coming near by the shepherds ; they would not, however, go away, but kept following ; and as soon as the ewe dropped her lamb (the shepherds having been engaged for the moment in driving away another party from another lambing ewe) it was attacked, the tail was bitten, but they were prevented from proceeding further by the immediate return of the shepherds.

They also evince as much eagerness to devour the “ *cleanings*,” or after-birth, if not prevented ;

but if the little animal has been licked clean by the mother, and is dry, it may be placed in the hurdles amongst the other ewes, without their being attacked or injured. Thus showing that the salt nature of the *liquor amnii*, which at that time covers the young one, is the principal exciting cause for this extraordinary propensity to destroy, that appetite being excited by having previously eaten the saline earth from the "water holes."

At the places where this destruction to the hopes of the wool-grower takes place, the pasturage is luxuriant ; and the situations would be selected, by a person ignorant of the before-mentioned circumstances, as some of the finest sheep-runs in the colony.

The mother will not devour her own progeny, but will sometimes (which is not unfrequent in maiden ewes) not take to the lambs, but forsake them ; until the shepherds hurdling the mother and young one together, the mother at last acknowledges her young.

It is not uncommon, however, for them to follow other ewes, attack and devour the lambs brought forth by them, in as ravenous a manner as the others would have devoured their young.

The ewes will not even wait until the young lamb is born, but when they see an ewe yearn-

ing, will rush upon her, devour the young one as it proceeds from the mother, and thus sometimes half the lamb is devoured before it is wholly born. Although the shepherds, by attention, endeavour to avert the evil as much as possible, yet when many ewes are lambing, the number of shepherds attached to the flocks are too small to enable them to attend to every individual case.

It may be asked, Does not the usual impulse of natural feeling induce the mother to prevent the destruction of her offspring? In reply, it may be said, That the poor, helpless, timid creature bleats, but makes no effort to defend her young one from the furious attacks of the "mob."

The poorest and leanest ewes are those remarked as being most eager to devour the lambs of others; they have been brought into that miserable state, from having previously been fine fat ewes, merely from the custom of devouring the saline earth.

The head shepherd of Mr. Dutton's flocks told me that there was not a finer flock of sheep in the country than those, previous to their devouring the salt clay and earth; after which they "fell off in condition," until they became in the miserable state in which I now saw them.

The following is another, among too many instances of their voracity. An ewe had just commenced lambing, was in labour, but no portion of the young one had yet been born, when from fifteen to twenty ewes were seen running towards her; the shepherds perceiving this, rescued the ewe, and remained near her until she had done lambing; the other ewes kept at a short distance, occasionally advancing to make an attack upon the young one. The lamb was brought forth, and when perfectly cleaned and dry, was placed in the sheep-fold, in the evening with the mother, as usual, but the other ewes then took no notice either of the mother or young one.

Although the breeding ewes suffer both in health, and acquire this morbid appetite of devouring the progeny of others, and their own cleanings, yet rams, wethers, and ewes, *not breeding*, fatten to an astonishing degree upon the same pasturage, where breeding ewes had become miserably lean, and died in numbers from being in so low a condition. On one of these spots, I saw a wether killed from a flock, which was so fat as to render the meat almost uneatable; and Mr. Manton, who, from the cause before-mentioned, had been obliged to remove all his breeding ewes from his pastures

about the Murrumbidgee, would, nevertheless, send his rams and wethers on the luxuriant pasturage, as the best place to fatten them ; indeed, all concurred that rams, wethers, and even the ewes, if not breeding, thrive and fatten upon that pasturage land about the Murrumbidgee country, which proves so destructive to breeding-ewes and their lambs.

Mr. Manton had sheep on the limestone ranges, near the banks of the Murrumbidgee river ; they became impoverished, and acquired the morbid appetite for devouring the young lambs ; but when he removed them to a granite soil, in the vicinity of Yas Plains, they speedily recovered their former good condition, and the morbid appetite left them, more probably from there being no “ water holes ” containing saline earth about the place, than from the change of strata ; however, they never returned to the unnatural practices, as was so frequent on the sheep-runs at the former place.

At Jugiong, Mr. O'Brien suffered in the loss of lambs from the same cause ; but by occasionally changing the pasturage, it was checked in some degree ; and although lambs were sometimes lost, yet the destruction was much lessened.

Even when the lambs are not devoured or de-

stroyed by the other ewes, yet from the miserable condition of the mothers, the shepherds have been obliged to remove the young from their care, from inability to support them, when they endeavour to rear them by hand as "pet lambs." If this were not done, the ewe would be more weakened by having to nourish her offspring, so that (as is known from experience) both ewe and lamb would be lost.

In rearing lambs away from the mothers many perish; and besides, the shepherd's object to raising pet lambs, if it could be avoided, because they are seldom good sheep; when turned out in the pasturage they become *poverty stricken*, still looking for the fostering hand that reared them.

At *Narangullen* a sheep-station, in the Murrumbidgee country, near *Guadaryby*, before the sheep discovered the spots in which the saline earth was situated, they brought forth the young in the usual manner, and the cleansings (if the delivery happened during the night) were found in the fold, and given as usual to the dogs; but when the earth was discovered, the lambs were attacked at birth, and the "cleansings" were devoured, if not timely removed by the shepherds.

At *Darbylara* (also situated on the banks of

the Murrumbidgee river) Mr. Warby, who has a fine farm at that place, suffered such losses among his flocks from this cause, that he was obliged to sell those that remained ; yet at *Brungul*, a station about eight miles distant, near the Tumat river, there was a small flock of sheep which had not shown any of this morbid appetite, and were in excellent condition.

On visiting Mr. Warby's farm, the whole had the appearance of being excellent pasturage, and affording excellent sheep-runs ; but about the pastures there were several pools of brackish water, to which the sheep resorted, and from which it was found at last impossible to keep them.

At this place again, although so destructive to breeding-ewes, rams, wethers, and ewes, not breeding, would fatten, and become in the finest condition, upon the same pasturage.

The sheep at these places eagerly devour the *Azolla pinnata*, which grows abundantly in the whole of the ponds and rivulets.

At *Guadarigby* I remarked that the cattle, after they had been turned out of the stock-yard, invariably came licking the ground about the huts. After some doubt as to the cause, it was found that the water in which salt-meat had been boiled, was thrown away about that place ;

and this it was that attracted the cattle : they would even attack one another to get at some places, which had been more impregnated with salt than another. This inclination of animals for salt is by no means adduced as any thing novel ; it is not confined to those domesticated among the herbaceous, but also among the wild in that class of animals ; for at *Blowrin Flat*, in the Tumat country, a water hole, nearly dry in some parts, and at others perfectly so, and similar to those I had before seen frequented by sheep, abounded in the tracks of the kangaroo ; and, on a closer examination, the earth (which glittered in the sun, as if impregnated with saline particles) was licked and gnawed, as was done by sheep in other parts of the country ; but it would be difficult to know whether similar results occurred with the breeding females of the kangaroos.

At *Lomebraes*, (about thirty miles from Goulburn Plains, on the road to Yas Plains,) the farm of Mr. John Hume, I was also informed that lambs and ewes had been lost, from similar causes to those I have been relating. The water of the river which runs through his farm in the summer season, when the stream is low, is *hard*, even so much so as to curdle the soap, and prevent any washing with it ; but in the winter

season, when the stream is increased, it becomes softer.

It is curious that Mr. Warby mentioned that a number of his cows had “slipped their calves,” or miscarried, and thought it proceeded from some poisonous herb they had eaten ; but Mr. Hume mentioned that his cows, which are accustomed when breeding to devour the earth impregnated with saline particles, “slip their calves,” and he could attribute it to no other cause. This occurred also at the farms of *Gon-nong*, *Mut, mut, billy* ; and at all places where the same propensity of licking and gnawing the saline earth, and devouring the lambs, occurred among the ewes, “slipping the calves” occurred among the cows ; but I heard nothing of their devouring the young.

THE ALBATROSS.

(See page 45, vol. i.)

THE Albatrosses are the largest of the oceanic birds, and their generic character (*Diomedea*) is thus defined :—Bill, very long, stout, edged, compressed ; upper mandible channelled on the sides, and much hooked at the point ; lower mandible smooth and truncated at the extremity ; nostrils lateral, like short rolls and open in front ; feet short, with only three very long toes, entirely webbed, but without any spur or toe behind, not even the little nail that is seen in the Petrel tribe ; wings very long and narrow, with the primary quills short, and the secondaries long.

The known species are *D. exulans*, *D. spadicea*, *D. chlororhynchus*, *D. fuliginosa* ; and Cuvier also enumerates *D. brachyura*, Temm., *D. melanophris*, Temm. : for the two last species I have not had an opportunity of referring

either to drawings or descriptions. There is a species found in Bass's Straits, of which the description is as follows, copied from my journal at the time : it was captured, during a voyage from England to New South Wales :—

August 21st, 1832. Fine weather, wind from north to north-east, fresh breezes. About one o'clock, P. M., land (King's Island, at the entrance of Bass's Strait) was announced from the mast-head, and at the same time an Albatross was captured with a hook and line from the stern ; immediately on seizing and swallowing the bait, it again rose into the air, and by hauling on the line, it was safely brought down (as a boy would a kite) on the deck. Several seized the bait, and flew up with it in a similar manner, but this one alone was caught ; the hook slipping from the others, and the ship's way being too great from the stormy state of the weather, to allow them much line to enable them to hook themselves better or swallow the bait. This one was the only specimen of the species we captured.

I placed this specimen in one of the hen coops ; it fed heartily on large pieces of fat salt-pork, beef, &c., but seemed to prefer the fattest and most oily food. A great number of the same species of Albatross were about the ship

at the same time, and when on the wing were mistaken for the species *spadicea* or the *chlororhynchus*. On being placed in the hen-coop the bird did not scream, make any noise, or flutter about to regain its liberty, but quietly settled itself, occasionally pecking with the sharp crooked point of the upper mandible against the rails of the coop, but did not continue this for any length of time. It remained during the whole time of its confinement always sitting down, excepting once or twice (the first time it was placed in the coop) walking the length of its prison, and had a perfectly contented appearance. The first two or three days, the bird refused any meat that was given it, but that being lean fresh meat, I do not think it was relished, for soon after giving it a fine fat lump of salt-pork it was eagerly devoured. In three days it was very quiet and tame, pecked its feathers, and seemed to be in good health, having a lively, bright, and beautiful eye; it uttered no cry when caught, nor has it done so during its confinement. After entering the Straits, these, and almost the whole of the oceanic birds which had before been following the ship, had forsaken us. I arrived with it safe at Sydney, on the 25th; it survived until the 29th, when it was found dead in the coop in the

afternoon, although it fed well in the morning. The dimensions of the specimen (which was a male) were as follows :—

	Feet. In.	
Length from base of bill to the extremity of the tail	2	6
Length of the bill		4½
Depth of the base of the bill		1½
Length of the tail		9
Length of ditto, exerted from feathers of the urupigium		5
Length of the thigh		6½
Length of the tarsus		3
Length of the middle phalanges		5½
Breadth of the wings expanded	7	0
Breadth between the wings from the first joint		4
Length of the first joint of the wing		10
Length of the second joint of the wing		10½
Length of the third joint of the wing		4
Length of the fourth, or pen-feathers	1	4
Length of inner angle of eye to base of beak		1½
Breadth of the foot when expanded		5
First pen-feather the longest.		

The following is the general description of this species :—The head, neck, breast, and urupigium of a snowy white colour; back, dark lead colour, shaded off to a lighter tint towards the neck; wing coverts, and upper part of the wings and pen-feathers, brownish black; under

surface of the wings of a white colour, intermingled with light brown, (forming a white streak, extending the whole length on the under surface,) except the pen-feathers which are the same colour above as beneath; tail, dark lead colour, of a lighter tint on the under surface; irides, light brown; a black mark on the upper and inner part around the eye, lightly shaded off towards the base of the bill; eyelids black; bill yellow, with the tips of the mandibles, especially the upper one, of a reddish colour, shaded with black; a black narrow membrane extends around the base of the bill, forming a distinguishing character in this species; feet bluish, with the web of a bluish brown colour.

The dissection of this specimen was as follows:—The pleura and peritoneum (similar to all the other specimens examined) were found inflated; muscles attached to the air-cells; liver large; right lobe in length three inches and two eighths, left two inches and three-eighths, soft, and easily torn; gall bladder in length three inches, and attached the whole of its length to the stomach, and part of the duodenum, and was filled with bile of a bright grass-green colour; length of the first stomach three inches and a half, longitudinal folds of the inner coat

throughout its whole length ; a line of demarcation marking the termination of the œsophagus and commencement of the first stomach ; length of the second stomach or gizzard one inch, in which were found some small beaks of a sepia ; length of the intestines, commencing from the second stomach and terminating at the rectum, six feet ; the lower part of the rectum was distended with fœces, white, and of a calcareous deposition in appearance, some of which was concreted, but readily broke like a soft calculus ; renal veins much distended ; pancreas in length three inches and two-eighths, very narrow at the upper part, and attached by a cellular membrane at that part to the gall bladder, and a portion of the duodenum ; it became larger in the middle, and narrower (but not so narrow as at the first part) at the termination ; about four inches and a half before the termination of the rectum are two projections, one on each side ; in the upper part of the rectum the fœces were dark-coloured, but at intervals were formed into hard lumps. The bird, in its general internal appearance, had not the healthy appearance of those recently killed, which must be attributed to its having been kept in a state of confinement.

The larger species of albatross arrives at the

length of three feet, and the wings, from point to point, have a spread of from eight to fourteen feet. I have heard it asserted that specimens have been shot, and the wings, from point to point, found measuring twenty feet, the plumage of those birds being entirely white; but I have never myself seen the spread of the wings greater than fourteen feet. The bill is in the larger species (the type of the genus) of a pale, dirty yellow, the legs and feet flesh colour. The ladies on board generally request the down of these birds for tippets, &c.; and among the New Zealand *ladies* it is used in small tufts for adorning the ears, being placed in the lobes, which are perforated for the purpose of receiving these or other adornments to satisfy their vanity, or command, if it be possible, public admiration. In New Zealand the bones of the same birds are frequently seen pending from the lobes of the ears and round their necks in the form of whistles and other ornaments. The Kamtschatdales are said to capture these birds chiefly for the sake of their bones, particularly those of the wing, which they convert to various uses.

During a former voyage, on the 1st of January, 1829, I had an opportunity of examining a specimen of the *Diomedea fuliginosa*, Sooty Albatross, or quaker-bird, which was captured (by a

hook and line, and a piece of salt pork by way of bait,) in latitude $39^{\circ} 40'$ south, and longitude $101^{\circ} 5'$ east. The wings, when expanded, measured six feet eleven inches from point to point. This was called *Pio* by some of the sailors on board. The bill was of a beautiful shining black, with a distinct white membrane passing about two-thirds down the lower mandible; the legs were naked, and, as well as the feet, of a flesh colour; irides brown, and a circle of white feathers surrounded the orbit; the head, neck, throat, and back, were of a sooty colour; breast and abdomen greyish; wing coverts of a light grey; the pen-feathers of a light black; the tail feathers above of a sooty, inferiorly of a light grey colour; the feet had each three toes, united by a web, slightly serrated at the edges; the first toe had five, the second four, and the third three phalanges.

On the 3rd of January another specimen was caught in latitude $40^{\circ} 34'$ south, and longitude $107^{\circ} 18'$ east, which differed in plumage from the preceding by having the sooty feathers on the head and back intermixed with white, which difference in plumage may have depended on age, as the sex of both birds was the same, being both males.

I have subsequently had opportunities of ex-

aming numerous specimens, in many of which there were slight differences of plumage, but none particularly marking the sex, that I could discover.

On the 5th of January, 1829, a specimen of the species named *Mollymawk* by our sailors, the mountain Albatross of the Americans, was captured in latitude $40^{\circ} 6'$ south, and longitude $111^{\circ} 49'$ east. This I suspect only to be a young specimen of the large wandering Albatross. The bill was of a pale, dirty yellow ; the head, neck, breast, and abdomen, were of a delicate and beautiful snowy whiteness ; the back black, intermixed with brown, changing to snowy whiteness near the tail ; tail feathers above black, underneath white ; vent white ; irides brown ; orbits surrounded by a naked skin of a light bluish colour ; black feathers at the inner angle of the eye ; legs and feet of a flesh colour. The wings, when expanded, measured five feet from point to point.

“ And is that the Albatross ? the bird mentioned of such an extraordinary size ? Well, I thought it a much larger bird ; but having so often heard that travellers’ accounts are exaggerated, I ought not to wonder at my disappointment.” — These remarks are often made by persons who make a voyage to sea for

the first time in their lives, and who have in their ideas conjectured that flying fishes, dolphins, albatrosses, &c. so far surpassed all other objects of the creation, that I have scarcely known an instance when such voyagers have not been disappointed at the reality, and considered all that has been related of them as marvellously incorrect. It was during my first voyage I watched eagerly from the stern of the vessel, for the first time, the majestic sailing of the huge Albatross in the air, seemingly enjoying the stormy winds which were at that time pouring their wrath upon our swift craft. It occasionally would sweep the rising billows, washing itself with the spray which broke from the conflicting waves, seemed to delight in the tempest, and looked to the superstitious seamen as if it was hovering over the devoted ship, regarding it, as the foaming billows dashed over its decks, as nigh destruction, and the inmates soon doomed to become its prey. It is a most interesting sight to see these birds during stormy weather flying with and against the wind, and approaching so close to the ship, as if they were about to alight, and seem "gayest of the gay" in the midst of foaming waves and howling winds.

One of my amusements on board was *fishing*

for albatrosses, Cape petrels, or pigeons as they are commonly termed, (from the supposed resemblance of their flight and bill to that of a pigeon,) with a hook and line, and a piece of fat pork as a bait, and a quantity of spare line to let out when the bird attacked my bait, so as to allow for the sailing of the ship, and give him time to hook himself as comfortably as possible, or as securely as desired. Many a laugh, and sapient gaze, and passing remark, have I had from my fellow-passengers, at the nonsense and folly of "*fishing*" for birds : I recollect having a crowd of eager, idle gazers looking on to see what success would attend this novel method of sporting among the feathered creation : the wind was light ; and after some time spent in expectation, as is customary with that humane body, the fishers, fortune favoured me, for a huge Albatross greedily seized my bait, and hauling the ponderous bird for some distance through the water, at last I *landed* him safely on deck : the strain of the line was very great, (with the ship not going above two or three knots an hour through the water,) and I was momentarily expecting it to give way. On this gigantic bird arriving on deck, its enormous size, and elegant, sleek plumage, was exposed to the close gaze of all the before

disbelieving passengers, who flocked from cabin and steerage to view the splendid prize, which excited both their surprise and admiration, as it lay on the deck, with expanded wings, and half drowned from having been dragged some distance through the water. Nothing more was afterwards heard of the size of the bird being exaggerated; and it proved for a long time after a subject of conversation, all uniting in pronouncing it an enormous and splendid production of the feathered creation. A second specimen was caught soon after: the first measured fourteen feet from the extremity of one wing to that of the other; and the second, ten feet four inches. There was a slight difference of plumage in the two birds; one having the upper part of the head and back of a beautiful pencilled white; while the upper part of the head and back of the other was black. The skin, on dissecting the birds, was found to contain a very large quantity of oil, as is usual with the oceanic birds. A cluster of cartilaginous tumors was found attached to the web of the foot of one of the birds. The pharynx and œsophagus are capable of being distended to a very large size, which enables the bird to swallow large pieces of food entire.

At certain seasons of the year they retire to

breed on rocky islands, as the Crozettes, Marion Islands, Tristan d'Acunha, &c. Captain Carmichael* describes their manner of breeding, as seen by himself on the Island of Tristan d'Acunha:—"As we walked down the mountain on our return," he observes, "we passed among flocks of Albatrosses, engaged in the process of incubation, or tending their young. There are four species of them that breed on the island, none of which hatches more than one egg at a time;—the *Diomedea spadicea*, *exulans*, *chlororhynchus*, and *fuliginosa*. The two former give themselves no trouble in constructing their nest, merely choosing a dry spot of ground, and giving it a slight concavity, to prevent the egg from rolling out of its place. The egg is white, very large, and of a peculiar shape, being uncommonly long in proportion to its diameter, and equally thick, or nearly so, at both ends.

"The black Albatrosses (*D. fuliginosa*) are at this season (January) gregarious, building their nests close to each other. In the area of half an acre I reckoned upwards of a hundred. They are constructed of mud, raised five or six inches, and slightly depressed at the top. At the time

* Description of the Island of Tristan d'Acunha, and its Natural Productions.—*Linnean Trans.* vol. xii. 1818.

we passed, the young birds were more than half grown, and covered with a whitish down. There was something extremely grotesque in the appearance of these birds, standing, on their respective hillocks, motionless like so many statues, until we approached close to them, when they set up the strangest clattering with their beaks, and if we touched them, squirted on us a deluge of fetid oily fluid from the stomach.

“ The *D. chlororhynchus* builds its solitary nest in some sheltered corner, selecting, in particular, the small drains that draw the water off the land into the ravines. There it runs up its nest to the height of ten or twelve inches, of a cylindrical form, with a small ditch around the base. A curious circumstance with regard to this bird is, that when irritated, the feathers of its cheeks are separated, so as to display a beautiful stripe of naked orange skin, running from the corners of the mouth towards the back of the head. All these birds nourish their young by disgorging the contents of their stomach. They are never observed to carry any article of food in their bill : those matters indeed, from which they derive the chief part of their sustenance, the blubber of dead whales, seals, and sea lions, would melt away if carried in the bill to any distance. We could not help admiring the utter unconscious-

ness of danger displayed by them on our approach : they never showed the least disposition to move out of our way : even when kicked, or pulled off their nests, they made not the smallest show of resistance ; but quietly returned to their post, or stood still until we passed on.

“ Their plumage is of the finest order, copious, and without the slightest stain. They find great difficulty in getting on wing, and must run twenty or thirty yards along the ground with expanded wings, before they can get fairly under way. We had the curiosity to take one of them by the point of the wings and fling it over the rock ; yet, though it had several hundred feet of a clear fall, it never recovered itself, but dropped down like a stone. On this account, when not engaged with their young, they usually rest upon the edge of the precipice, from which they can launch at once into the air ; and on entering again upon that difficult part of our route, we had to kick upwards of a dozen of them to the right and left of us before we could get on.”

It is almost incredible the distance these birds will fly : this has been repeatedly ascertained by marking birds that had been captured, and then suffering them again to be at liberty, watching how long they remain constant about the ship : they follow the vessels for the sake of the offal,

which is daily thrown overboard. Eight or ten days before the pairing season, the male Albatrosses come to the land, fix on a spot, which they scrape clear, where the intention is to form the nest; this being completed, they fly away again to sea, and return a few days afterwards, in company with the females.

When the wind falls light, the Albatross fishers are on the alert; it is then that all the hooks and lines that can be procured on board are put into requisition, and the steward receives frequent solicitations for pieces of fat pork for bait; some of these birds when hooked, before they can be brought on board either manage to detach themselves from the hook, or escape by its breaking. It is laughable to see, when one is hooked, with what eagerness he is followed by the others, (while dragged through the water by his capturers,) all eager to seize the bait, they consider he is monopolizing; they pounce down upon it, and look surprised to find themselves quietly perched on the waves while the other poor hooked bird, bait and all, is before them in rapid progress towards being taken on board.* Numerous eager gazers are all

* These birds, when brought on board, seldom utter any

ready assembled on the poop of the vessel to receive the stranger; where, on its arrival, it remains the patient, stupid-looking subject of a hundred passing remarks: the ladies give their due share of praise to its large bright eyes, fine sleek and clean plumage; the expansion of wings is duly measured, the bird, during the time remaining sitting in a quiet manner, appearing very sulky, and apparently unmindful of all around, until a few practical jokes keep its bright eyes on the alert against all personal attacks. After having been admired and pitied (as much as its situation may be considered to require) by the fair sex, and having satisfied the curiosity of both sexes, it is consigned either to the anatomist to be dissected and stuffed for the benefit of science, or to form a skeleton to grace some of the museums in England; or sometimes regains its liberty, with a piece of ribbon tied around the neck, by which it may be readily recognised should it continue to follow the ship, which it usually does for a long time after. Sometimes the passengers on

sound, and that which sometimes proceeds from them is a raucous but not a loud sound. None of the oceanic birds seem to have a very loud note, that of the tropic bird seems the most shrill; the Storm Petrel, or "Mother Carey's chicken," has a pleasing twittering note.

board will amuse themselves by firing with ball at the poor bird as it follows the bait ; one I saw struck by the deadly shot, turned on its back, dead, and, as the ship passed it, we could see its companions fall upon it eager to make it their prey. We were inclined to consider this wanton act a useless destruction of bird-life ; but his companions seemed to regard it only in the light of a fine, fat, oily prize.

These birds are sometimes very ravenous, and even when foiled in several attempts to seize the bait, by the passage of the ship through the water being too rapid for them, they will persevere as long as they seem to think there is any chance of success.

In 1828, when dissecting the head of the Albatross, I observed, imbedded in a bony cavity, situated immediately over the orbit, a gland, which was covered above by a dense fascia. The cavity to which the gland corresponded was of a semilunar form, and situated over each orbit : at the anterior part of this cavity or depression a small portion was left membranous, excepting a minute orifice, permitting the passage of what seemed to me to be an excretory duct, but the course of which I lost soon after it had penetrated this membrane. The floor of the cavity was perforated by numerous minute

foramina, probably for the passage of nutrient vessels to the substance of the gland. This gland is found in most, if not in all, the aquatic birds, but varies in them, both with respect to exact situation or extent. On the dissection of the common duck, I found it, not imbedded in a bony cavity, but situated on a dense fascia, slightly projecting over the superior and posterior margins of the orbit. It is similarly situated in the boobies and others. In the Cape petrel (*Procellaria Capensis*) this gland is situated partly in a narrow semilunar depression over the orbit, and partly on a dense membrane, continuous from the margin of this bony cavity, extending from two orbital processes, serving to complete the superior part of the orbit on which the gland rested. A dense fascia covers the glands, which fascia is not continuous over the other part of the head, but binds the glands firmly down in their situation.

In the gull tribe (*Larus*) it is situated in a bony depression over the orbit, but more superficial than in the Albatross, and extends over the cranium, so as nearly, if not actually, to touch the gland on the opposite side, and both extending so as to cover the anterior part of the cranium.

It is difficult to conjecture the use of this

gland, as those possessing it have also a lacrymal gland in the usual situation. I could not observe at this time, either in the Albatross, or any other oceanic or aquatic bird, any excretory duct. Cuvier, in his *Comparative Anatomy*, (vol. ii. p. 440,) thus alludes to it: "Les oiseaux du genre des canards, et d'autres oiseaux d'eaux et de rivage, ont un corps glanduleux, dur, grenu, qui occupe toute la partie supérieure de l'orbite et se contourne en arrière pour suivre la courbure de l'œil. Dans le morillon (*Anas fuligula*) il est si large qu'il touche son correspondant par dessus le crâne. Ce corps paroît tenir lieu de la glande lacrymale : *je n'en ai cependant pas encore vu le canal excréteur.*"

In July, 1832, during a passage to New South Wales, a capture of an Albatross afforded me an opportunity of again dissecting this gland, with the view of ascertaining, if possible, whether an excretory duct actually existed. I found the gland of a hard granulated substance and pale colour, consisting of numerous, distinct, minute oval bodies, and on being cut it is found to be abundantly nourished by blood-vessels; the nerves supplying it came from the minute foramina seen on the floor of the cavity, and are distributed in and about the substance of the gland. These glandular bodies are placed in

two rather semicircular depressions, (one over each orbit,) to which the form of the gland corresponds, accurately filling up those cavities, and bound down firmly by a strong and dense fascia: the distance between these cavities, or depressions, (in the specimen now under examination) was three-eighths of an inch; the external margin of this cavity is very narrow, partly cartilaginous, partly bony; the gland does not project over the outer margin, a distance of one-eighth of an inch being left beyond it. Not finding any duct when I came to the anterior portion of the gland, which was visible, I commenced a further research, by laying open the bony plate which covered the olfactory part of the upper mandible, continuing the destruction of this portion of the bill, on one side, to the nostril. I then found that the gland was continued for a short distance further, under the bone, towards the nostril, situated rather above and anterior to the nasal portion of the orbit. On pursuing my dissection further, I found a nerve (a branch of the fifth pair?) passing down the thin bony plate, at the interior part of the upper mandible; this I traced until it entered the skull, and thus found it had no connexion with the gland, as its first appearance led me to suspect; but close to and under it was another appear-

ance, which could be distinctly traced, emerging from the gland ; it was about a line, or rather more, in thickness, and, tracing its course, I found it proceeded in a straight direction, and then had an almost imperceptible inclination upwards, until I lost it among the cellular substance of the upper mandible, (to which it was attached partially, if not entirely,) rather more than an inch from the base of the bill ; the length of the duct, as far as traced, was one inch and seven-eighths. I made a drawing of the preparation.

An interesting subject next for inquiry is, what this gland secretes, and what is its use in that situation ? which at present cannot be answered.

Some of these birds, when brought on board, will throw up a quantity of foetid oily fluid and undigested food, becoming " sea-sick," as it is usually termed ; such, however, is not invariably the case, as numbers are brought on board who are not guilty of such indecorous conduct, but it always happens when any of the petrel tribe are captured.

Although accustomed to dissect several of the oceanic birds which were captured on board, still I cannot refrain from making some remarks on the cruelty of those who pass away a leisure

hour on board, by firing at them as they fly about the ship. These little "indefatigables," as some are pleased to term them, are too often doomed to become the subjects of this murderous sport. Often and often, with broken wings, they are left to linger on the wide expanse of waters, unable to procure any food but that which may accidentally pass them; buffeted about by the waves, and helpless in themselves, they linger out a miserable existence, until death puts a period to their misery. It is revolting to the feelings to see these beautiful and perfectly innocent birds destroyed, solely to gratify the inclination to destroy.

In latitude $36^{\circ} 25'$ south, longitude $5^{\circ} 18'$ west, in July, 1832, the *D. fuliginosa*, or Sooty Albatross, was first seen flying about the ship; these breed in great numbers on the island of Tristan d'Acunha. The greatest number I ever saw of this species about the ship, was during strong breezes on the 30th of July, which were attributed to the vicinity of St. Paul's and Amsterdam Islands, about which islands I have always remarked this species of Albatross to predominate: there were a few resembling *Chlororhynchus* amongst them. We had seen the *fuliginosa* very rarely since we had arrived at the

eastward of the Cape, four or five at the utmost only being visible; the last two or three days they have been more numerous, the large white species having disappeared for some time; but on approaching the islands before mentioned, their numbers increased, although we did not see the islands. As we approached towards King's Island, at the entrance of Bass's Straits, this species had forsaken us. These birds, as well as all the Albatross genus, Cape Petrels, and other birds, follow the ship during the whole of the night, reposing for a short period on the water, in which position they have been passed close by ships, riding like a duck on the water, but they seldom remain long on the waves, usually alighting for food, and soon resume their flight.

I directed my attention to observe whether these birds followed the ship during the night, and the result of those observations was a decision in the affirmative, as marked birds have been seen about the ship for days together, when the strong gales have carried the vessel at a daily rapid rate through the water. I have seen, occasionally, the Cape Petrels and Albatrosses flying near the stern of the vessel as late as midnight; and it is not unusual to hear the

twittering note of the Stormy Petrel (*Procellaria pelagica*,) under the stern during the night.

Captain Beechey gives the following instance of the Sooty Albatrosses confining their flight within certain limits, and considers it may add weight to the opinion, provided it were not accidental, which future navigators might probably ascertain.

“Off the River Plate, we fell in with the Dusky Albatross, (*Diomedea fuliginosa*,) and as we proceeded southward they became very numerous; but on reaching the latitude of 51° south, they all quitted us. We rounded the Cape, and on regaining the same parallel of 51° south on the opposite side, they again came round us, and accompanied the ship up the Chili coast.”—*Voyage to the Pacific and Beering's Strait*, vol. i. p. 17.

The Albatross delights in food of an oily nature when it can be procured; and on the islands where they breed are often seen in flocks about the carcase of a whale, sea-lion, seals, &c., which have been thrown dead on the rocks, and there they seem to fatten and luxuriate on their luscious repast; but when at sea, their food consists of the Sepiæ, or cuttle-fish tribe, Aplysiæ, or sea-hares, the spawn of fish, and

numerous other species of the Mollusca animals, as Vellela, Salpa, Medusa, &c., and they follow ships for the purpose of procuring the remains of food which may be thrown from them.

The gall-bladder in the Albatross is usually found full of bile, of a fine grass-green colour, which dries of a greenish-yellow colour, and is perfectly applicable for water-colour drawing, where such a tint may be required.

The usual size of the large white or Wandering Albatross, (*Diomedea exulans*), is as follows:—

						Feet	In.
The expanded wings	.	.	.	.	.	14	0
Length of the body	.	.	.	.	.	3	0
Length of the bill	.	.	.	.	.	0	7
Foot, when expanded	.	.	.	.	.	0	6

On the 18th of July 1832, in latitude 40° 12 south; and longitude 27° 52' east, the species of Albatross called *spadicea*, was taken. The description and measurement of this specimen, was as follows:—It was called *Nelly* by our sailors. The head, neck, and underparts, white; back, wing-coverts, pen-feathers and tail, brownish black; under parts of the wings and tail, lighter colour; the brownish black of the back is shaded off towards the hinder part of the neck, and be-

comes a plumbo-atro or lead-coloured black ; the first pen-feather is the longest, which differs from the usual character in this genus ; the pen-feathers decrease *gradatim* from the first ; irides brownish ; a black mark from half an inch before the inner and upper part of the eyes, behind and above the outer angle of the eyes ; eyelids black ; the base of the upper mandible black, as well as the termination of both mandibles ; the remainder of the mandibles of an olive green, with delicate black tints ; wings same length, when closed, as the extremes of the tail ; quills of the pen-feathers white ; skin dark-coloured ; a quantity of fine down between the skin and the feathers ; base of the feathers white ; feet flesh-coloured, with bluish tints ; the circulation of the venous and arterial system is beautifully seen ramifying over the web ; nails of the toes short, and slightly covered outwards in one, and inwards in the opposite foot ; the cuticle of the feet is readily abraded when it is placed on a hard surface, even for a short period of time ; the web of the foot thick, and it is usual for sailors to make *purses*, as they term them, by extracting the phalanges, without injuring the web, leaving the claws at the extremities.

The measurement of the specimen (which was a male) was as follows :—

	Feet	In.
Length of the body, from base of bill to extremity of tail	2	4
Length of the bill	0	4
Depth of the base of the bill	0	1½
Length of the tail	0	8½
Length of ditto, exerted from the feathers of the urupigum	0	3½
Length of the thigh	0	3½
Length of the tarsus	0	3½
Length of the middle phalanges	0	5½
Breadth of wings expanded	7	4
Breadth between the wings from the 1st joint	0	4½
Length of the 1st joint of the wing	0	10½
Length of the 2nd joint	0	10½
Length of the 3rd joint	0	4
Length of the 4th, or penfeathers*	1	3
Length of the inner angle of the eye to the base of the beak	0	1½

The structure of the mandible is much thinner in this than in the large white species, and the nostrils are not so elevated and twisted.

The dissection exhibited the following appearances. The pleura and peritoneum were found inflated ; the abdominal viscera, except the liver, were seen behind the latter ; liver large ; right lobe longer and larger than the left ; gall-bladder two and one-eighth inches in length, narrow,

*The wing has four joints, of which the second is the longest.

attached to the liver only by the biliary ducts ; stomach covered externally with much fat ; the interior consisted of numerous rather tortuous longitudinal folds, and numerous papillæ covered the internal surface, from which, on pressure, a small quantity of a thick substance exuded, leaving a gaping opening : the first stomach was empty ; the second stomach was lined with a greenish substance, and contained only an undigested beak of a cuttle fish ; heart covered with much fat ; gall-bladder full of bile of a grass-green colour ; kidneys four-lobed, on one of the lobes was a small diseased spot, of the size of a pin's head, from which some inky fluid could be expressed. This lobe was easily broken, and evidently diseased : it was the first lobe of the right kidney ; ureters long, terminating in the cloaca.

The bill in this species differs from others of the genus, in being more slender and delicate in formation, more particularly when compared with that enormous type of the genus the *D. exulans*.

The interior of the mouth is of a white colour, excepting near the edges of the mandibles, which have a delicate pink tinge.

From the length of the bill in these birds their bite is not severe, except when they seize

or strike with the hooked mandible, when the impression is strong, but not so great as would be expected from so large a bird.

On the 24th of July, 1832, in latitude $40^{\circ} 32'$ south, longitude $50^{\circ} 45'$ east, we captured the species called *chlororhynchus*.* It was taken by getting its wing entangled in the line, (which was out with a bait attached to it,) as it flew under the stern; it was too old a bird to take bait, but not so wise as to escape the line, and avoid being entangled in it. On being hauled on board, it became unusually vociferous, and screamed for liberty in loud, hoarse, discordant cries. When, in the gentlest manner imaginable, we commenced measuring him, he vehemently exclaimed against it, and was declared by all on board a very noisy bird; he was, probably, an old stager, perfectly well aware of the fate that awaited him. He received the usual share of commiseration from the ladies when they understood he was to be dissected, accompanied by a request for the down.

* It is difficult, indeed I should say impossible, to state correctly the species of Albatross seen during flight, particularly by the plumage, as, at one time, in a certain position, the appearance is different from that which it assumes, almost immediately afterwards, in another.

I now proceed to describe this specimen, commencing with the dimensions, which may be regarded as the usual size of this species. This bird is doubtless the *D. chlororhynchus* of Gmelin, allowing the slight difference in the plumage to be the result of age. Gmelin thus describes it:—

“*D. alba*, rostro nigro, carina mandibulæ superioris basique inferioris flava, capite grisco, cœna, macula supra oculos caudaque obscuris, dorso, alis maculaque inter rostrum et oculos nigris. Irides fuscæ; nucha et uropygium alba; pedes pallide ochroleuci, antè cum membranâ digitos connectente obscuri.”

	Feet.	In.
Length of the body from the tip of the bill to extremity of the tail	2	5½
Length of the bill	0	4
Depth of the base of the bill	0	1½
Length of the tail	0	8½
Length of the tail, exerted from feathers of the uropygium	0	3¼
Length of the thigh	0	6
Length of the tarsus	0	3
Length of the middle phalanges	0	4½
Breadth of wings expanded	6	4
Breadth between the wings from the first scapular joint	0	5
Length of the first joint	0	9
Length of the second joint	0	9¼

	Feet.	In.
Length of the third joint	0	3 $\frac{3}{4}$
Length of the fourth joint, or pen-feathers	1	3
Length from the inner angle of the eye to the base of the beak	0	1
Breadth of the foot when expanded	0	5 $\frac{1}{2}$

The plumage was clean, delicate, and very handsome, particularly about the head. From this bird I procured a small parasitical animal, probably a *Ricinus*, which was found rather numerous about its feathers, it is prettily marked on each side, with a silvery appearance on the back, when viewed through a microscope.

The upper surface of the wings, scapulars, and back in this bird, was a brownish black; the urupigium, white; the head, chin, and neck, of a delicate grey, or blue grey. The back is shaded off towards the neck, which becomes of a soft and beautiful leaden colour, of more light and delicate tints as it proceeds around the front part of the neck, extending towards the breast; eyelids black: the upper surface of the tail was of a light black; shaded with white in a very delicate and beautiful manner. At first, this appearance was supposed only to be the result of the different lights in which the bird was occasionally placed; but subsequent observations confirmed its being the marked co-

lour. On examining one of the tail-feathers plucked from the bird, it was found delicately tinted; the shaft diminishing gradually as it proceeded from the quill to the extremity, until it terminated in a very fine filament, projecting one-eighth of an inch from the plume; this was observed in the whole of the upper and large tail-feathers. The plume as it came off on each side from the base, terminated in a beautiful downy appearance; tail-feathers underneath of a lighter colour—vent (crissum) white, which gives a light delicate appearance to the edge of the feather.

The breast and abdomen are of a snow-white; under surface of the wings, upper line along the wing-bones, and a little below, brownish-black; middle white, (excepting a few brown feathers near the axilla,) forming a continuous broad white line the whole length of the under surface of the wings; lower feathers base white, tips black, under surface of the pen-feathers black; shafts white.

At the inferior part of the external angle of the eye, around the margin of the lid, a narrow white mark extends for the length of seven-eighths of an inch. A diffused black-mark was situated over, and extended to the inner angle of the eye, terminating near the base of the bill

in lighter shades of the same colour, forming an agreeable contrast with the delicate leaden hue extending over the head and neck.

Bill blackish ; upper surface horny, (shaded with light black at some parts,) extending, of a similar appearance, to the hooked process of the upper mandible. At the lower part of the inferior mandible, this horny appearance also extends to within an inch of the tip. Irides brown ; the first pen-feather the longest ; feet and legs marbled, the web marbled blue, more at the anterior edges, and between the second and third toes ; claws of the toes turned outwards, (to the right.)

There is a very minute tubercle at the posterior, and lower part of the tarsus, which is considered by some as a rudiment of thumb, and I suppose to be that alluded to by Lesson, when he says of this genus, “ pouce sans ongles.”

The fœces of this specimen were of a reddish purple colour, as if occasioned by his swallowing some *Aplysiæ* ; but the skeleton of a *Loligo* was solely found in his stomach, the interior of which, as well as the whole length of the intestinal canal, was seen on dissection to be tinged of a similar colour ; but no remains of *Aplysiæ* were to be found : could the colour, then, have

been produced by the *Loligo*? The second stomach contained one perfect and one imperfect beak of a sepia, both of small size. The gizzard or second stomach is small in proportion to the size of the bird.

The specimen was a female; the cluster of ovaries of a yellowish colour, and situated just above the superior lobes of the kidneys, were distinctly seen.

This animal attacked furiously every thing that was placed before it, screaming with its trumpet-like voice at the same time. It always made some impression with its beak when the hooked end of the mandible came in contact with the object attacked, but not without.

This bird, on being placed on the skylight of the poop, tied by the leg, made one attempt to regain its liberty; finding that attempt fruitless, it never renewed it, but remained with folded wings, apparently content, but appearing to watch the approach of intruders with its large brilliant eyes. When left alone, the bird remained seated, perfectly quiet, pecking its feathers, and looking as content and unconscious of danger as when I have seen them resting tranquilly on the water, undisturbed by the ship, as it has passed quite close to them. I cannot, however, consider its sight very acute, as,

although watching me, I found no difficulty at any time in seizing him by the neck. Indeed these, unlike the man-of-war bird, gannet, &c., do not require great acuteness of vision, as their food is principally the sluggish mollusca, not fish, as has been often asserted as serving them for prey, this bird being regarded also, but I consider erroneously, as one of the enemies of the flying fish.

The Albatross does not require that acuteness of vision requisite in the *Tachypetes aquila*, or man-of-war hawk, which hovers to a great height in the air, and then darts with rapidity on its finny prey. The flight of the Albatross, on the contrary, is low, and it frequently skims the surface of the water, watching for the objects which serve it for food, or the sepia, as they leap from, or swim tardily near, the surface of the ocean.

Sometimes the Albatrosses form a sea-dish, and are eaten by the crew; but it is seldom they are used for this purpose in the present day, although formerly they were caught and esteemed for that purpose, as a change to the miserable salt junk. Captain Cook mentions, in his first voyage, the method used to prepare the birds before cooking them, and passes much commendation on the dish. "The Albatrosses," he observes, "we

skinned, and, having soaked them in salt water until the morning, we parboiled them, then, throwing away the liquor, stewed them in a very little fresh water till they were tender, and had them served up with savoury sauce: thus dressed, the dish was universally commended, and we ate of it very heartily, even when there was fresh pork upon the table."

I was not aware, until I perused the entertaining "*Fragments of Voyages and Travels*," by Captain Hall, that the Albatross was ever found so near the equator. "On the 24th of May," he writes, "the day before crossing the equator, a number of those huge birds, the Albatrosses, were seen soaring over the face of the waters, and the flying fish, when rising into the air to avoid their natural enemies, the dolphin and bonito, were frequently caught by these poaching birds, to the very reasonable disappointment of the sporting fish below, on whose manor they were trespassing. These intruders proceeded not altogether with impunity, however, for we hooked several of them, who, confident in their own sagacity and strength of wing, swooped eagerly at the baited hooks, towed far astern of the ship, and were thus drawn on board, screaming and flapping their wings in a very ridiculous plight."

On the 23d of July, 1832, in latitude $40^{\circ} 16'$ south, longitude $46^{\circ} 45'$ east, an Albatross was hooked ; and when about to haul it in, the line (which was out its whole length) accidentally slipped ; the bird consequently swallowed hook, bait, and a portion of the line ; the remainder hung out from his bill. He was seen about the ship in the afternoon with a long portion of the line pending from the beak. This morning he was seen following the ship, but the length of line which hung from his beak was now reduced to very short dimensions : he had, probably by gradually swallowing, thus reduced it. From this bird being thus marked, we have ascertained that he has followed the ship for two days ; and as we have been sailing at the rate of two hundred miles per day, (from the irregular flight of this bird, their actual flight may be correctly quadrupled,) it has followed us in a direct line four hundred miles. How long previously it had been about the ship, or subsequently followed it, we had no means of ascertaining, as the following day none of the Albatrosses had a string pending from the beak : our friend, no doubt, having swallowed the whole of it.

Sometimes the bait would attract an Albatross, cause him to alight, and shake it with his beak ; but, " putting on a knowing look," he

eyed it again, perhaps suspicious of its appearance, would refuse it, and fly off. Perhaps he had had a good feast of cuttle-fish, and therefore, being in a dainty mood, did not like the bit of skinny pork that was offered for his acceptance.

These birds are the greatest part of their existence on the wing; but there are other of the oceanic birds which merely seek their food during the day, returning to the land to roost at night; but, from sometimes being blown away by heavy gales, they are obliged to bear away for the nearest port, and take refuge, much exhausted, on the rigging of ships. The booby is one of these; and from the circumstance of being easily captured at night on the rigging, has received its common name, whereas it is as much gifted with sense as any of the oceanic tribe of birds, which, at the best, is not an overplus; but Nature, no doubt, has given them as much as they require for their existence in this world.

So marked is the form of the superorbital depression in aquatic birds, that I have no doubt, judging from my limited series of observations, the genus may be determined by it alone. So marked is it in the Albatross genus, that from it the skull of that bird may be easily recognized. The Petrel tribe have it only half bony, the membranous portion projecting from the outer

edge of the bone, which membranous portion is usually found wanting in the prepared skulls of those birds. In the *Larus* or gull tribe, the flatness of the cavities, and their extending over the anterior part of the skull, so as nearly, if not actually, to touch, seems a distinguishing mark in that genus. In the booby, duck, and some others, there is no depression, although the gland exists, being situated over the orbit, merely on a membranous projection.

My brother, Mr. F. D. Bennett, exhibited, at the meeting of the Zoological Society, on the 25th of June, 1833, a dried preparation of the upper larynx and adjoining parts of the Albatross, (*Diomedea exulans*, Linn.) for the purpose of demonstrating the existence in that bird of an epiglottis; and observed, "that the *rima glottidis* is bounded by two elevated fleshy lips, which consist of mucous membrane and some few muscular fibres, and are armed with retroflexed spiculæ. These lips are in perfect contact at the hinder part of the glottis when it is closed, but diverge near their anterior part, so as to leave a triangular open space of about the size of a pea, the edges of which are incapable of being approximated to each other. In front of this triangular aperture, and at some distance behind the tongue, (to which it is connected by mucous membrane

and muscular fibres,) is an elevated substance of a soft leathery texture, resembling that of the epiglottis of *Mammalia* : its form is triangular, the apex being inferior, and connected with the tongue, and the base being elevated, and terminating in three convex portions or lobes. The middle one of these lobes is the largest ; it is free, and rests immediately over the triangular orifice of the larynx just described, which, when depressed, it is in size adapted to cover. In a line continuous with the floor of the upper larynx and penetrating beneath the epiglottis, is a cavity or sac lined with mucous membrane."

Having demonstrated these parts on the preparation exhibited by him, he added that as it had been the opinion of naturalists in all ages that no bird possesses an epiglottis, the structure which he had brought under the notice of the Society appeared to him highly interesting. So fixed was the opinion to which he had adverted, that when Warren showed the existence in the ostrich (*Struthio Camelus*, Linn.) of a structure which he regarded as an epiglottis, the denomination was generally rejected, even in this anomalous bird, and the part was considered as a mere elevation at the base of the tongue, a rudiment, but without the function, of the organ. In the Albatross, however, the function is that

of an epiglottis ; and the size, though small, is sufficient for the protection of that portion of the rima glottidis which cannot be closed in the manner usual in birds by the apposition of its margins. With a peculiar structure of the glottis there exists an apparatus equally peculiar in the class, as a provision against the inconvenience which might otherwise result from the deviation from the normal structure.*

* Proceedings of the Zoological Society of London, June 25th, 1833.

NOTES ON THE PLANTAIN AND BANANA TREES.

(See Page 385, Vol. 1.)

IF we regard the immense varieties of the vegetable kingdom, their peculiar forms, large and minute flowers of splendid tints, and delicious fruits,—we find them all conduce to the happiness and luxury of man—affording him raiment, food, and adding to the comforts of his existence.

When we contemplate the vegetable productions of nature, we find that they impart a tranquillity to the mind, which the animal kingdom, ever slaves to conflicting passions, can never produce ;—when suffering from violent emotions, an indescribable degree of repose is felt while viewing the tranquil but beautiful scene of a well-furnished garden, or the more magnificent grandeur of forest scenery. A calmness is

produced, which, counteracting our more violent passions, leads us back to our sober reason, and to reflection.

Among the splendid, varied, and profuse vegetation, with which tropical countries abound in so infinite a degree, the magnificent, herbaceous plant, the Plantain tree, usually attracts particular notice ; and, together with the cocoa and other palms, are the productions of the vegetable kingdom which adorn the picture of the artist, when depicting the scenery of the tropics. The broad leaves overhang gracefully the succulent and huge stem of this plant ; whilst, just at their bases, huge clusters of fruit, of yellow, red, and other colours, contrast harmoniously with the shining, dark-green foliage.

The size this splendid plant usually attains is eight feet ; but I have seen them at the elevation of twelve, and even fifteen feet, with a diameter of stalk from one foot to two feet. The stem is formed partly from the united petioles of the leaves ; and they are said to contain such a quantity of spiral vessels, that they are capable of being pulled out by handfuls, and are actually collected, in the West Indies, and sold as tinder : or, according to the quotation from “Decandolle’s *Organographie Végétale*,” tom. i. p. 38, “the top of the Plantain tree appears to be com-

posed almost entirely of spiral vessels, when cut across ; and so abundant are they, as to be collected in handfuls, in the Antilles, and form a kind of tinder."

The number of threads capable of being drawn from each convolution of these spiral vessels, is from seven, as M. de la Chesnay has calculated even to twenty-two. (*Idem*, p. 37.) The young shoots of the Banana trees make an excellent edible.

The threads procured from the stalks of some species of this family are used for very fine and delicate-textured linen and muslin. At Manilla there is an extensive manufacture of muslins and sinamaya, or grass cloth, from the coarsest to the finest texture it is possible to manufacture, and, sometimes it has been stated, "made of fibres so fine, that they require to be manufactured under water, because, if exposed to the sun and air, they become too fragile to work."* The coarsest fibres of the same plant form the Avaca, or Manilla hemp of commerce, used in the manufacture of cordage. The species of *Musa* is called *M. textilis* ; but I do not consider it at all accurately known : it forms planta-

* Abel's Narrative of a Journey in China, &c. &c. 4to. p. 251.

tions at Manilla, but I could never see it during my visit to that country.

Finlayson gives the following interesting information respecting the wild Plantain tree, found on the island of Pulo Ubi, off the southern extremity of Cambodia.

“We had,” he says, “the good fortune to find that splendid herbaceous plant in flower : unlike, however, to that luscious and most delicious fruit raised by the hand of man, the fruit of the wild Plantain contains scarce any pulp whatever. Its leathery sheath incloses numerous series of large black seeds, attached to a pithy, central stem, and immersed in a gummy substance resembling bird-lime.

“It appeared, by our systematic works, that the seeds of this most useful plant have been but rarely seen by botanists ; hence doubts had been expressed upon the subject. In none of the cultivated varieties are there any seeds discoverable ; though, at times, we may observe minute black points in the pulp, disposed in longitudinal rows. These are, probably, the feeble traces of seeds not yet quite extinguished by cultivation, the black perisperm being the last to disappear. The seeds were numerous, covered with a thick, black, brittle shell, and as large as those of the custard apple, but of a more irregular shape.

“ There is no necessity to refer, as Willdenow does, the origin of all the cultivated varieties, and of all the species enumerated by botanists, to the *Musa troglodytarum*, a native of the Molucca Islands, as the parent stock. Our specimens accorded with the descriptions given of *Musa sapientum*. The seeds were in all respects perfect, and apparently capable of propagating the plant. Indeed, its existence on these islands, so rarely frequented by man, and altogether unfit for cultivation, can be accounted for on no other principle than the fertility of the seeds.”*

It is, however, curious (and whether it depends on the fertility of the soil, I will leave for the decision of others) that the *Fehi*, or *Wild Plantain tree*, (*Musa Fehi*,) which is found growing so luxuriantly about the declivities of the mountains, has no seeds in its fruit. Sometimes a few straggling plants are found in the romantic valleys of the beautiful island of Tahiti,* (and also others of the Polynesian Islands,) propagating themselves by suckers: so dense at some places have I seen them, that they appear almost united into one mass. The fruit produced from this species is large, full, of a dark orange colour, (which contrasts harmoni-

* Finlayson's Journal of a Mission to Siam, &c. pp. 86, 87.

ously with the very dark green colour of the foliage,) containing a bright yellow pulp ; and although in a perfectly wild state, does not contain any seeds : its taste, when perfectly ripe, is sweetish, but with a roughness or astringency of flavour, so that they are usually preferred roasted, by which their flavour is evidently very much improved. This species also yields, from the trunk, a quantity of a dark, purplish juice, which I did not find was used by the natives for any purpose, but it may, probably, be applicable as a dye.

At the Society Islands, the natives dry and press the ripe fruit of the Banana, which forms in that state an excellent sweetmeat, and might be probably a profitable export to Sydney, (N. S. Wales,) where it is now occasionally seen when sent as a present to some resident at that town.

It is related in Cook's First Voyage, whilst in Endeavour River, that a " party returned about noon; with a few palm cabbages, and a bunch or two of wild plantains ; the plantains were the smallest I had ever seen, and the pulp, although it was well-tasted, was full of small stones." *

Captain King stated to me that he attempted

to find this tree during his stay at Endeavour River, when he surveyed the Australian coasts, but his researches were unsuccessful. In another part of the same volume,* it is stated of the Bananas, at Batavia—"There is one which deserves the particular notice of the botanist, because, contrary to the nature of its tribe, it is full of seeds, and is therefore called *Pisang batu*, or *Pisang bidgie*; it has, however, no excellence to recommend it to the taste, but the Malays use it as a remedy for the flux."

Where grass or hay cannot be procured, voyagers will find the succulent stem and leaves of this plant, as well as the leaves of the *Dracæna terminalis*, an excellent substitute, for feeding goats and other animals.

* Vol. i. page 309, 8vo. edition.

THE INHABITANT OF THE NAUTILUS POMPILIUS.

(See Page 399, Vol. i.)

It was on the 24th of August, 1829, (calm and fine weather, thermometer at noon 79°,) in the evening, when the ship *Sophia* was lying at anchor in *Marakini Bay*, on the south-west side of the island of Erromanga, one of the New Hebrides Group, Southern Pacific Ocean, that something was seen floating on the surface of the water, at some distance from the ship; to many it appeared like a small dead tortoise-shell cat, which would have been such an unusual object to be seen in this part of the world, that the boat which was alongside the ship at the time, was sent for the purpose of ascertaining the nature of the floating object.

On approaching near, it was observed to be the shell-fish, commonly known by the name of

the Pearly Nautilus; (*Nautilus pompilius*;) it was captured and brought on board, but the shell was shattered from having been struck with the boat-hook in capturing it, as the animal was sinking, when the boat approached, and had it not been so damaged would have escaped.

I extracted the fish in a perfect state, which was firmly attached to each side of the upper cavity of the shell. On being brought on board, I observed it retract the tentacula still closer than before, and this was the only sensation of vitality it gave after being caught; I preserved the soft parts immediately in spirits, after making a rude pen and ink sketch of its form.

On breaking the lower part of the shell, the chambers, or cavities, were found filled with water.

The *hood* has been stated by Dr. Shaw (Lectures, vol. ii. p. 165) "as being of a pale reddish purple colour, with deeper spots and variegations;" the colour, however, as it appeared in this recent specimen, was of a dark reddish brown, in fact, resembling the colour produced by the *Koka* on the stained cloth of the Tongatabu natives, intermingled with white.

We had fine weather—light winds and calms, a day or two previous to this animal being caught.

The representations of the animal in Dr. Shaw's works are not at all correct; that by *Rumphius* is correct, as far as regards the description of the external parts of the animal.

This species of Nautilus is stated to be called *Kika*, *lupia*, and *Krang modang*, by the natives of Amboyna; and *Bia papeda*, *Bia cojin*, by the Malays.

This animal has, for a number of years, been a *desideratum* of science; but some doubt existed whether it might not have been captured with the shell; and the collectors, not valuing the animal, or being unaware of the value attached to it by naturalists, may have extracted and thrown it away.

The two following accounts confirm this supposition; I place dependence upon the statements, because at the time both persons were ignorant of the form of the fish, and were also unaware of its value: they knew it more from the beautiful colours of its shell, than from any other part connected with it.

An officer of his Majesty's ship *Ariadne* informed me that he caught the shell with the animal within it, on a reef at the island of *Pemba*, near *Zanzibar*, on the eastern coast of *Africa*, at the time himself and several others, belonging to the ship, were seeking for shells.

(This occurred in the year 1824.) The animal was not floating upon the water, but was in a hole on the reef; he does not recollect which part of the shell was uppermost. The mantle of the fish, like a thin membrane, covered the shell, which was drawn in as soon as it was touched, and the elegant shell was then displayed. "I and others," observed my informant, "when it was first seen, did not notice it, regarding the animal, as the membrane enveloped the shell, merely as a piece of blubber; but having touched it by accident, the membranous covering was drawn in, and we soon secured our beautiful prize."

"The fish," he further observed, "was a large mass attached to the shell, which we soon extracted and threw away, as we only wanted to *collect shells*."

The mantle was compared to what he had subsequently seen covering the shells of the *Harps* and *Cowries*.

These animals were not numerous, for this was the only one collected during the time they remained there, or on subsequent visits.

A section of the shell was afterwards made on board, but none of the appearances, or whether air or water was contained within, could be re-collected.

A mate of a whaler, who had been shipwrecked upon, and resided among the Fidgi group of islands in the Southern Pacific, for nearly three years, says he has seen the shell of the *Pearly Nautilus*, containing the living animal, floating on the water, near one of the islands. He had only seen two, as they are not commonly seen *with the fish in them*, although the empty shells were very numerous among that group of islands.

He stated, the first time he saw one, was when in a canoe with some other shipwrecked Europeans; it was then floating upon the surface of the water, the mouth of the shell uppermost. It was enveloped in the mantle, which extended some distance upwards, and over the whole of the shell; it had such an appearance as to cause one of the men in the canoe to say, "There is a large piece of blubber upon the water:" on approaching it the animal retracting the mantle, displayed the beautiful striped shell, and sank before they could capture it.

At Manilla, the shells of this species of *Nautilus* are in great abundance; they are neatly carved, the whole of the coloured part of the shell being removed, and the portion exposed appearing of a beautiful nacre, or mother-of-pearl,

with the raised white carved figures upon it, which have a pretty effect. I could not procure any with the soft parts, but was told by a gentleman that he had seen them with the fish, but it was always taken out and thrown away, and the shell alone preserved.

One of the shells cut, and the aperture turned downwards, forms the base ; the keel of the shell, with the aperture uppermost, is placed upon it, forming a pretty vase of antique form, and highly esteemed in Europe as ornaments for the mantel-piece ; they are sold at Manilla for a few reals the pair.

The inhabitant of this beautiful shell, which I brought safely to England, has been described and dissected by my esteemed friend, R. Owen, Esq., and published, with splendid engravings, by the Curators of the Museum of the Royal College of Surgeons in London.

ON THE HABITS OF THE VIVERRA MUSSUNGA, OR JAVA CAT.

(See Page 438, Vol. i.)

ON the 14th of May 1833, I purchased one of these animals from a native canoe, which came off to the ship on the coast of Java : it is commonly known among Europeans by the name of the *Java-cat*, and is a native of Java, Sumatra, and perhaps others of the eastern islands. This specimen was young, and appeared very tame. The native from whom I procured it, had it inclosed in a bamboo cage, in which I also kept it for a short time.

The colour of the back is blackish, intermingled with shorter hairs, of a dirty-white ; the forehead and most of the face whitish, intermingled with black ; neck and abdomen of a yellowish colour ; the eyes are full and large, of

a yellowish-brown colour ; pupil perpendicular, becoming dilated at night. . It resembles the cat, in being more of a night than day animal.

It feeds on plantains and other fruit, and also fowls' bones. When busily engaged in picking the wing-bone of a fowl, it growls most savagely if disturbed in its repast ; which well shows the nature of the beast. . " He eats only plantain," said the Javanesse, from whom I purchased it ; but could the animal have spoken for himself, he would have probably hinted that " portions of the animals composing the feathery kingdom" would also be acceptable, by way of variety. It is tame and playful, like a kitten, throwing itself on the back, playing with a bit of string, making, at the same time, a low, whining noise.

It utters a sharp, quick, squeaking noise, as well as a low moaning, more particularly at night, or when in want of food, or some water to quench its thirst. The specimen is a male : it was very playful, and climbed up my arm, by aid of its claws, like a cat. When it drinks, it laps like the dog or cat.

May 17th. This morning, the animal had broken through and escaped from its cage during the night, and was about some part of the ship.

May 18th. The whole of yesterday, the creature was reported as "absent without leave;" but early this morning he was found in the cabin of the second officer, asleep upon a jacket. He appears sufficiently tame to be left at liberty, so I did not immure him in a cage again, but kept a piece of long string attached to one of the hind legs, so as to limit his extent of range, when I found it necessary.

Whilst writing in my cabin, the animal was either lying down quietly asleep, or else came to see what I was about, thrusting its little sharp snout among my papers, and amusing himself by playing with my pens and pencils.

The animal is called *Mussong*, at Java, and I found it was also known by the same name among the natives on the north-east coast of Sumatra: it licks and cleans its furry coat with the tongue like the cat, especially after it has been much handled; and seems also to possess the *caution* and *secretiveness* of that tribe. It growls savagely when disturbed or teased. It lapped some coffee one morning, but became sick soon after.

It seems to be a fretful, impatient, little creature, and when it does not get its wants gratified, becomes "terribly out of temper," or

rather gets into a temper which is of a bad description. It then snaps ferociously at the finger placed near it, but its young teeth can make but little impression ; it is in downright earnest, however, for it bristles up and advances its long whiskers, uttering a series of peevish cries and growls.

It was lying upon the pillow of my bed one morning, when I took the creature off, and placed it upon as soft a place which had been made up in the cabin on purpose for it ; but this would not do ; it did not like the removal, and there was no termination to its peevish, fretful cries, until it was removed back to the old place, where being deposited, after licking itself about those parts of its furred coat that had been ruffled by handling, it stretched itself, and laid down quite contented.

The squeaking, discontented noise of the creature during the night, when it is tied up, is very annoying. I suppose the desire of making nocturnal rambles, as is the nature of the tribe, was the cause to which the cries were to be attributed.

At last I used to give it fowl bones at night to amuse itself, and being occupied in *crunching* them, I was no more annoyed by its nocturnal cries.

When fighting it uses the fore-paws, with extended claws, biting at the same time, retreating and advancing quickly, snapping, bristling up its long whiskers, and appearing a fierce object for one of the small animals of the creation. It does not spring at the object of attack like the cat, but jumps forward ; it uses the claws of the fore-feet more than those of the hind, which, being both longer and sharper, are more calculated for the purpose of defence, as well as in climbing. It regards the object well previously to attack, exercising the three prominent organs in the feline race of *caution*, *secretiveness*, and *destruction* ; and then, with its little angular mouth expanded, it pounces upon, and firmly grasps its prey.

The little beast has a very morose looking countenance, what some people skilled in physiognomy would call a "*sour, forbidding countenance* ;" and, judging from what I have seen of this tamed and young specimen, it must be, in the wild state, a very savage animal.

Unlike the cat, when drinking it does not care about wetting its feet, for it often places the fore-paws in the water at the time.

It often plays with its long tail, as well as with any thing that may be in the way, similar to what we observe in kittens ; and often

scratches against objects, growling at the same time, as if practising for future defence.

It eats fowl readily, but not other kinds of meat so well ; it ate some pine-apple with much avidity.

It will carry away a bone given to it into a dark corner, growling and snapping at any one that may attempt to take it away.

Sometimes, when left to itself, it utters such loud squeaking cries, as to be heard all over the ship. One day, at dinner time, (when the animal was first on board,) a noise was heard, from whence it proceeded, or from what, we could not tell, until the mystery was explained by the steward, who said it was " the foreign cat."

Like all animals, whether of the genus *Homo*, or lower in the scale of creation, the Java Cat does not like to be disturbed at meals. This little ill-humoured quadruped is particularly savage at that time, but, like the human race in all its numerous varieties, when " feeding time " is over, and it has had a sufficiency of provender, it will remain quiet, and be usually in a tolerable good-humour ; but when hungry, there is nothing but growling, whining, screeching, grumbling, crying, until the appetite is satisfied.

I gave the animal one morning a dead cockroach, but after turning and twisting about, and licking it for some time—perhaps it was not hungry, it would not eat it.

When the creature is excessively annoyed, it retires into some dark hole or corner, making a spitting noise, and is very furious against any one that may attempt to dislodge it from that place, thus formed into a refuge for the ill-tempered.

When first set at liberty he was missing for one or two days, having gone on a tour by way of change of scene; he soon, however, returned to his old quarters, ran about the cabins, and when sleepy during the day would take to the warmest and most comfortable situation the cabins afforded; it was as fully domesticated as a cat.

The *Mussong* runs about quite domesticated, and climbs well, occasionally aiding itself by the tail having a prehensile power.

He also runs about, particularly at night, and in the morning is usually found quietly asleep upon the softest bundle of clothes he can meet with, in the cabin into which he has introduced himself: he dislikes much to be handled, or petted, or crammed, (unless he crams himself, which he very often does,) and,

therefore, he is not to be recommended to that variety of the human species called a "maiden lady, of a certain age."

At last I let the creature ramble about where it pleased in the after part of the ship ; it reposed in the cabins, or any other place it liked. It used to wander about like a cat, and come at meal time for food, until the 14th of June, when it was missing, and search being made about its usual haunts, the animal was discovered dead among some oakum in one of the cabins.

When at Pedir, on the north-east coast of Sumatra, I procured another young but larger specimen than the preceding ; it was purchased for half a rupee. Although wild with strangers, with the native from whom the animal was purchased it was exceedingly domesticated. I have seen it follow him like a cat along the pathway for some distance, when he placed it out of his arms upon the ground ; the natives gave it the same name here as at Java, *Mussong*.

These animals attain the size of our domestic cats, living in their wild state upon the summits of trees, eating the fruit, and also birds, when they have caught them.

They eat sugar-cane, plantain, rice, and also those troublesome insects the cockroaches.

When I placed this animal in my cabin it remained very quiet, not making so much noise as the last ; but, a few days after, it became so very vicious, not suffering any one to approach or touch it, without spitting, growling, and fighting so furiously, that I at last was obliged to destroy it, preserving the skin in a dried state for stuffing, and the body in spirits for a future dissection.

LUMINOSITY OF THE OCEAN.

(See Page 35, Vol. i.)

MR. F. D. BENNETT, exhibited, at a meeting of the Zoological Society, on the 25th of June, 1833, several specimens of a species of *Pyrosoma*, captured by him, on the 6th of September, 1832, at sea, in latitude $1^{\circ} 41'$ north, longitude $11^{\circ} 56'$ west. Between 2 and 4 A. M. the sea, having been two hours before less luminous than usual, presented one mass of bright phosphoric light, extending to a considerable distance around the vessel. The extensive field of bright luminous matter emitted so powerful a light as to illuminate the sails, and to permit a book of small print to be read with facility near the windows of the stern cabins. Above this luminous field numerous sea fowl were hovering in search of their prey. The light appeared to be entirely owing to the *Pyrosomata*.

Specimens taken from the sea and placed in a

vessel containing sea water, ceased altogether to emit light, or emitted it but sparingly while they remained at rest. On the water, however, being agitated, or when one of the masses of animals was taken into the hand, the whole became instantly illuminated by myriads of bright dots, much resembling in hue the points on the elytra of a diamond beetle (*Curculio imperialis*, Fab.)

The Pyrosoma, thus enveloped throughout its whole extent in a flame of bright phosphorescent light gleaming with its peculiar hue, presented a most splendid spectacle; the light shed by it was sufficient to render objects distinctly visible in every part of an otherwise dark room. If long retained in the hand, or returned to a quiescent state in the water, the luminous spots gradually faded, and no light was visible until the animal was again disturbed, when the illumination instantly returned with all its vivid splendour. After death it emitted no light.

The mass of Pyrosoma, of the usual cylindrical form and gelatinous substance, was about four inches in length and one and a half in circumference. The tube, passing along its middle, is described as being open at both ends; the orifice at the broader extremity being much better defined in its circular form, larger, and more distinct than that of the opposite end.

The surface of the mass appeared to be studded with numerous prominent, rigid, and pearly tubercles intermingled with small specks of a brown or red colour. In these latter the power of emitting light appeared chiefly to be seated, these being frequently bright, while the remainder of the body exhibited only its natural white or yellowish white huc ; a huc which changed after death into a red tinge. The brown specks, when removed from the body, did not emit light.*

* See published proceedings of the Zoological Society, No. 6, June 25th, 1833.

TREATY BETWEEN THE BRITISH AND ACHEENESE GOVERNMENTS.

(*See page 2. vol. ii.*)

TREATY of friendship and alliance between the Honourable English East India Company and the kingdom of Acheen, concluded by the Honourable Sir Thomas Stamford Raffles, Knight, and Captain John Monckton Combs, agents to the governor-general, in the name and on the behalf of the Most Noble Francis Marquis of Hastings, Knight of the most noble order of the Garter, one of his Britannic Majesty's most honourable Privy Council, Governor-general in Council of the British possessions in India, on the one part, and his highness Sri, Sultan Alla Iddeen Jowhara, Allum, Shah, king of Acheen, for himself, his heirs, and successors, on the other.

In consideration of the long and uninterrupted peace, amity, and good understanding, which

has subsisted between the Honourable English East India Company and his highness's ancestors, the kings of Acheen, and in order to perpetuate and improve their friendship, to the advantage and prosperity of their mutual states and subjects. It is hereby agreed and determined.

ARTICLE I.—There shall be a perpetual peace, friendship and defensive alliance, between the states, dominions, and subjects of the high contracting parties, neither of whom shall give any aid or assistance to the enemies of the other.

ARTICLE II.—At the request of his highness, the British government engages to require and to use its influence to effect the removal of Syfful Allum from his highness's territories, and the British government further engage to prohibit him or any of his family, as far as they may be subject to their authority, from doing or committing in future any act or acts, tending to prevent or impede the full re-establishment of his highness's authority. His highness the king engaging himself to place at the disposal of the supreme government of British India, such pension or annuity, as it may, in its wisdom, deem meet to recommend for the said Syfful Allum, on the condition of his retiring to Penang, and engaging to relinquish all claims to the sove-

reignty of Acheen, within three months from the date hereof.

ARTICLE III.—His highness the king grants to the British government the free trade of all his ports, and engages that the duties on merchandise, levied at those ports, shall be fixed and declared, and shall also be paid by the resident merchant. His highness likewise engages not to grant or authorize a monopoly of the produce of his states by any person whatever.

ARTICLE IV.—His highness engages, whenever the British Government may desire it, to receive and protect an accredited agent of the British government, with a suitable establishment, who shall be permitted to reside at his highness's court, for the purpose of conducting the affairs of the Honourable Company.

ARTICLE V.—In consideration of the injury which might result to the British trade from its exclusion from the ports of his highness's states, not at present subject to his authority,—his highness agrees and consents that the ships and vessels of Great Britain shall continue their commercial intercourse with the ports of Acheen and Tullasamoy, in the same manner as heretofore, unless a temporary blockade of these ports, or either of them, shall at any time be established by and with the consent of the British government, or resident authority.

It is clearly understood, however, by the contracting parties, that no warlike stores or arms of any kind shall be furnished, given, or sold, to any of his highness's rebellious subjects, by the vessels so trading to the aforesaid ports, under penalty of confiscation of ship and cargo.

ARTICLE VI.—His highness Sri, Sultan, Alla, Iddeen, Jowhara, Allum, Shah, agrees, promises, and engages himself, his heirs, and successors, to exclude the subjects of every other European power, and likewise all Americans, from a fixed habitation or residence in his dominions; he also engages not to enter into any negotiations, or to conclude any treaty, with any power, prince, or potentate whatsoever, unless with the knowledge and consent of the British government.

ARTICLE VII.—His highness engages not to permit the residence, in his dominions, of any British subject to whom the resident agent shall offer any objections.

ARTICLE VIII. — The British government agrees to give and furnish to his highness, without delay, all the arms and military stores which are detailed in the paper appended to this treaty, and signed by his highness. (Arms and military stores; gunpowder, forty barrels; four hundred muskets; grape and round shot; four hundred musket balls, &c. &c.; cash, Spanish dollars,

fifty thousand.) The British government agrees to advance to his highness the sum of money, therein mentioned, as a temporary loan to be repaid by his highness at his earliest convenience.

ARTICLE IX.—This treaty, consisting of nine Articles, has this day been concluded, subject to the ratification of the governor-general, within six months from the date hereof; but it is to be understood that the several provisions herein contained may be carried into immediate effect, without awaiting the said ratification.

Done at Sirduli, near Pedir, in the country of Acheen, on the 22nd day of April, in the year of our Lord, 1819; corresponding with the year of the Hegira, 1234, and the 26th day of Jemadil Akir.

(Company's seal.)

Signed,

T. S. RAFFLES.

(Seal.)

JOHN MONCKTON COMBS. (Seal.)

THE END.

LONDON:

ROBINSON AND PALMER, PRINTERS, SAVOY-STREET, STRAND.

